GD World

Vol. 12 No. 1 3 January 1982

EB Awarded Navy Contract For 9th Trident

The U.S. Navy has awarded Electric Boat a $524 million contract to begin construction of a ninth Trident-class ballistic missile firing submarine, SSBN 734.

In addition, the contract contained options for two more Tridents, SSBN 735 and 736.

The vessels are 560 feet long and have a 42-foot beam. They will carry 24 missile tubes, eight more than carried on the previous class of ballistic missile firing submarines.

The *Ohio*, the lead ship in the class, was delivered last October and commissioned in November.

Major Improvements Made to Salaried Retirement Plans

Major improvements have been made to all of the General Dynamics Salaried Retirement Plans.

Major changes were: benefits have been updated through 1980; the minimum benefit has been increased from $8 to $14 per month for each year of eligible service; and the company will bear the entire cost of the plan, eliminating employee contributions after January 1, 1982.

In a letter to salaried employees describing the new features, David S. Lewis, Chairman and Chief Executive Officer, said, "When combined with your Savings and Stock Investment Plan and Social Security, these improvements will give you comprehensive retirement benefits that rank high among the top companies in our industry."

Details on the improvements have been mailed to eligible salaried employees. Further information may be obtained from Industrial Relations.

Egyptian Delivery. *Participants in the January 15th delivery ceremonies for the first Egyptian Air Force F-16 are framed by the vertical tail and fuselage of the third EAF aircraft. On the platform (from the right) are: Maj. Gen. Mohamed A. Hamid Helmi, EAF Chief of Staff; Dr. Alton G. Keel Jr., Assistant Secretary of the USAF for Research, Development and Logistics; Dr. Ashraf A. Ghorbal, Egyptian Ambassador to the U.S.; Congressman James C. Wright Jr., House Majority Leader; Lt. Gen. Abd Rab El-Naby Hafez, Chief of Staff of the Egyptian Armed Forces; David S. Lewis, General Dynamics Chairman and Chief Executive Officer; Col. Howard L. Bodenhamer, USAF Plant Representative at Fort Worth; Herbert F. Rogers, Vice President and General Manager of Fort Worth Division, and, at the podium, Maj. Gen. Edgar A. Chavarrie, USAF Assistant Deputy Chief of Staff-Programs and Resources.*

First F-16 Delivered to Arab Republic of Egypt

The first of 40 F-16s was formally delivered to the Egyptian Air Force (EAF) by the U.S. Government in ceremonies at Fort Worth January 15th, attended by leaders of both nations and of General Dynamics.

In accepting the multimission fighter on behalf of the Middle Eastern nation, Egyptian Ambassador to the U.S. Ashraf A. Ghorbal said, "This marks a great day in American-Egyptian relations."

First Delivery. *Signing acceptance papers for the first Egyptian F-16 are (from left): Brig. Gen. George L. Monahan, U.S. Air Force F-16 System Program Director; Lt. Gen. Abd Rab El-Naby Hafez, Chief of Staff of the Egyptian Armed Forces, and Maj. Gen. Mohamed A. Hamid Helmi, Egyptian Air Force Chief of Staff. The aircraft (shown below) made its initial flight on January 9th.*

Dr. Ghorbal said the F-16s used by the Egyptian Air Force "will give any would-be aggressor a moment to reflect and not be tempted, so that we will not be another Afghanistan and so there would be no other Afghanistan in our area. This is a great day for Egypt, for the Egyptian armed services and for its air force."

In a news conference preceding the delivery ceremony, Maj. Gen. Mohamed A. Hamid Helmi, Chief of Staff for the EAF, said the F-16 was chosen to be the mainstay of the Egyptian Air Force because "it is the best aircraft for our operations, according to our evaluators, for this time and well into the next decade."

During the ceremony, attended by representatives of the F-16 System Program Office, some of the key subcontractors, including Pratt & Whitney, Westinghouse and General Electric, and division employees, Lt. Gen. Abd Rab El-Naby Hafez, Chief of Staff of the Egyptian Armed Forces, added, "The F-16 will be the main aircraft in the Egyptian Air Force for the coming years. We will use the aircraft to defend our country and not to threaten anyone. We will not use it to promote war, but to pursue peace."

Against a painted backdrop of two F-16s flying over the Pyramids, David S. Lewis, Chairman and Chief Executive Officer of General Dynamics, assured Dr. Ghorbal and other Egyptian leaders that the company is committed to vigorously support the EAF.

"I would like to tell you that General Dynamics is determined to make this transition and introduction of the F-16 the smoothest, easiest and the best of any program in the history of the Egyptian Air Force . . . these airplanes will be maintained and supported to the maximum extent of our ability," Lewis said. "And, most of all, we hope that this will be but the first step in a long and constructive relationship between the government of Egypt and General Dynamics."

The EAF is scheduled to receive the last of the initial purchase of 40 F-16s in January 1984. Several Falcons, including the first to be formally turned over and two others which were on display during the ceremony, will be delivered by U.S. Air Force pilots to the An Shas Air Base northeast of Cairo in March.

Brig. Gen. George L. Monahan Jr., USAF F-16 System Program Director, just before turning over the first aircraft to the Egyptian general officers, pointed out that the aircraft had been "delivered lower than our anticipated cost, delivered earlier than had been expected and I can assure you that its performance and its lethality are every bit that we expected and perhaps then some.

"We have airplanes (F-16s) now in several air forces around the world that are establishing records in mission capability, better than we have ever attained before with our airplanes. This has been a truly magnificent effort on the part of General Dynamics, its very many subcontractors and the European partners. . . "

House Majority Leader James C. Wright Jr., Democrat of Texas, also had high praise for the aircraft:

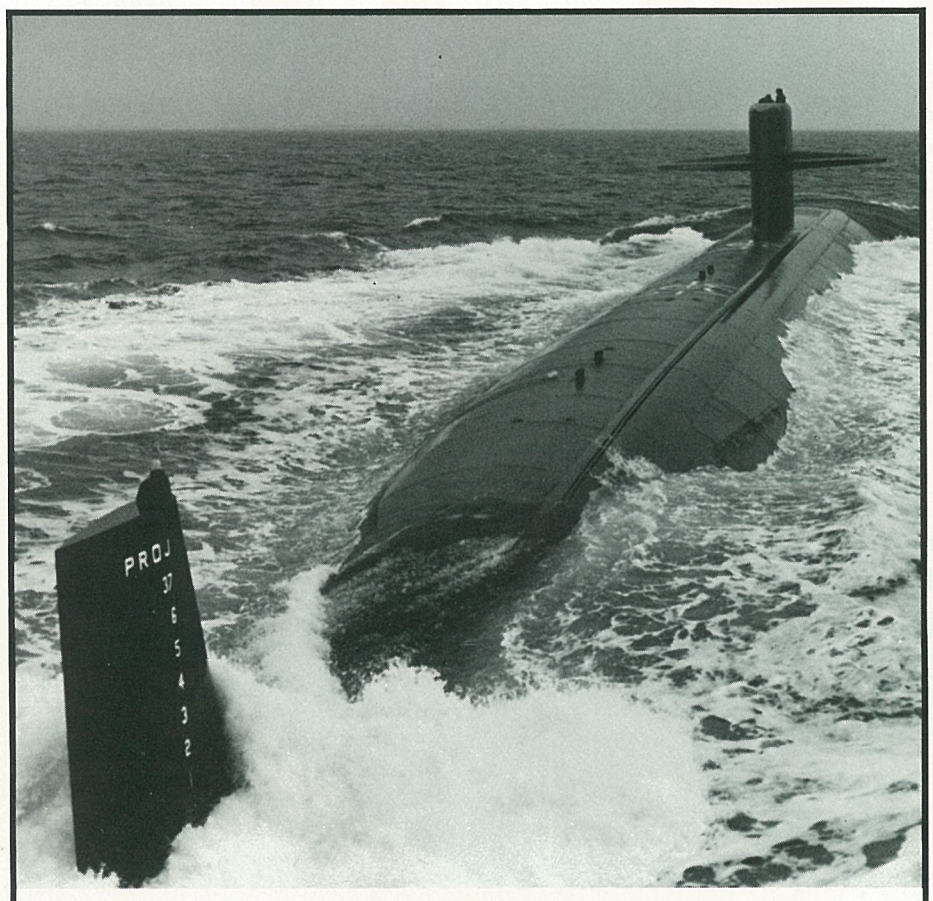
"Today in delivering the first in a defensive fleet of the world's most modern and most versatile tactical aircraft, we seal another link in our firm bond of friendship with a proud and great nation whose people are determined to be free," he said.

Congressman Wright, in whose district the Fort Worth division is situated, also pledged, "What we celebrate here today is a secure and growing friendship between our two nations and between the peoples of those two nations based upon mutual determination to preserve and defend freedom at whatever cost and to exist by deeds as well as words in our pursuit of peace on earth."

At the conclusion of the ceremony, dignitaries and guests viewed a high-performance flight demonstration of the first EAF F-16 piloted by Neil R. Anderson, Fort Worth's Director of International Flight Evaluation-Engineering.

Dividend Declared

The General Dynamics Board of Directors declared a regular quarterly dividend of 18 cents per share on the company's common stock and $1.0625 on its Series A preferred stock, payable on February 16, 1982 to shareholders of record on January 18, 1982.



SSN 703 Boston During Sea Trials

Navy Congratulates Electric Boat Upon Fulfilling 1981 Commitment

Electric Boat delivered the* Boston *(SSN 703), a 688-class fast-attack submarine, to the U.S. Navy on December 22d, fulfilling its commitment to deliver seven submarines in 1981.

The extraordinary accomplishment is without precedent in the history of the Navy. Measured in total tonnage, it even exceeds peak World War II submarine production in a comparable time span.

Following completion of the* Boston's *sea trials, George A. Sawyer, Assistant Secretary of the Navy for Shipbuilding and Logistics, sent the congratulatory letter reproduced below to the company:

THE ASSISTANT SECRETARY OF THE NAVY
(SHIPBUILDING, AND LOGISTICS)
WASHINGTON, D.C. 20360

December 22, 1981

Mr. David S. Lewis
Chairman of the Board
General Dynamics
Pierre Laclede Center
St. Louis, MO 63105

Dear Mr. Lewis,

The successful completion of inspection and survey (acceptance) trials on SSN 703 on December 17th represents the culmination of an extraordinary achievement for Electric Boat. It means that the yard will indeed meet its goal to deliver seven submarines in 1981.

I recognize that this was a highly ambitious and difficult undertaking, but you have persevered and have demonstrated by dedicated performance that Electric Boat remains a vital contributor to the Navy's rebuilding program.

This accomplishment is a substantial step toward our mutual objective of maritime superiority. Its attainment is totally dependent on a continuing commitment and total exertion of our combined energies.

Secretary Lehman joins me in offering our sincere congratulations and best wishes to each of you personally and to your employees. You have given your nation and Navy a Christmas gift to long remember with pride and gratitude.

Sincerely,

George A. Sawyer

Social Security Tax Will Increase in 1982

Payroll deductions for the Federal Insurance Contributions Act (FICA or Social Security) will increase from 6.65 percent of taxable wages in 1981 to 6.7 percent in 1982. In addition, the taxable wage base was increased from $29,700 last year to $32,400 in 1982.

The maximum deduction for Social Security in 1981 was $1,975.05; under the new scale the maximum amount which can be withheld is $2,170.80. For every dollar that is deducted from an employee's pay, the corporation pays a matching amount.

Savings and Stock Investment Values

	Nov. 1979	Nov. 1980	Nov. 1981
Salaried			
Government Bonds	$2.2579	$2.4446	$2.8071
Diversified Portfolio	1.5903	2.2079	2.1371
Fixed Income	1.0393	1.1448	1.2718
Hourly			
Government Bonds	2.2579	2.4424	2.8045
Diversified Portfolio	1.6272	2.2528	2.1824
GD Stock	$23.7100*	$40.3750*	$23.2500

* Reflects 2 for 1 stock split of November 1980.

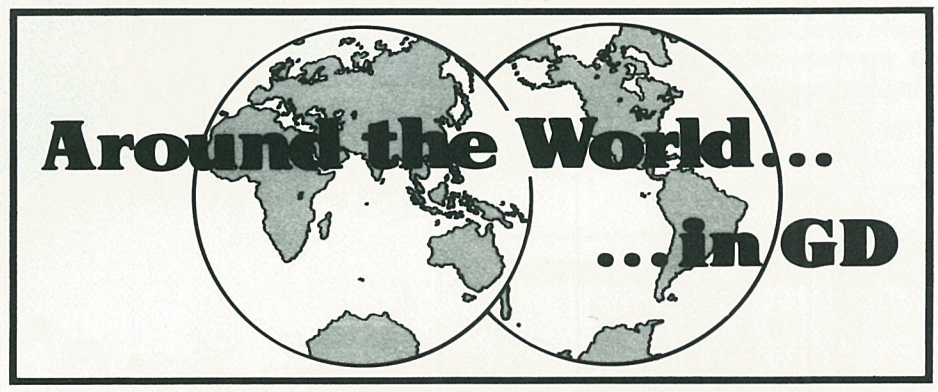
Pomona Receives Army Contract For Terminal Guidance Warhead

The U.S. Army Missile Command has awarded Pomona a contract for a six-month study of the requirements needed to develop a Terminal Guidance Warhead (TGW).

The warhead will provide the Multiple Launch Rocket System with a capability to attack and destroy armored vehicles.

Pomona is the primary contractor for the TGW study which is being performed by a consortium of international companies under a memorandum agreed to by the United States, the United Kingdom, France and West Germany. Through the consortium, the TGW research, development and production costs will be significantly reduced for each participating country.

The other companies participating as equal members of the consortium are: Sperry Gyroscope, Florida; Sperry Gyroscope, England; SEP, France; Dynamit Nobel, West Germany, and SCICON, England.



CHQ: *Ellen F. Ross* was promoted to Corporate Office Personnel Manager . . . *Charles H. Lloyd* to Corporate Director, Financial Planning-Commercial . . . *Roger L. Groh* to Corporate Director, Employee Benefits.

Fort Worth: *N. R. Baird Jr.* and *J. B. Wallace Jr.* to Manufacturing Control Supervisor . . . *H. Borbolla Jr., J. W. Driskill, E. R. Hicks* and *P. A. Zomnir* to Project Manager . . . *R. Brewer* to Manufacturing Manager . . . *J. R. Clement Jr.* to Financial Specialist . . . *B. L. Cleveland* to Inspection General Supervisor . . . *J. D. Drewett* to Project Engineer . . . *H. M. Edwards* to Chief of Tool Planning . . . *G. R. Gaston* to Manager, Manufacturing Engineering . . . *D. R. Hibler* to Manufacturing Control General Supervisor . . . *B. E. Larance, R. E. Neil* and *R. N. Munger* to Logistics Supervisor . . . *D. M. Mayeaux* to Program Specialist . . . *D. L. Miller* to Marketing Manager . . . *M. K. Pilliod* to Inspection Supervisor . . . *L. Goza* to Quality Control Manager . . . *D. L. Raub* to Manufacturing Technology Engineer, Senior . . . *J. A. Ray Jr., G. E. Schwab, T. A. Siler, P. G. Tulley* and *P. W. Zeigler* to Field Service Engineer . . . *B. J. Roberson* to Chief of Logistics . . . *C. L. Rooks* to Financial Analyst, Senior . . . *W. D. Sloss* to Supervisor, Quality Assurance . . . *J. W. Sneed* to Engineering Chief . . . *R. E. Wadsworth* to Logistics General Supervisor . . . *E. G. Ward* to Chief of Procurement . . . *R. E. Welton Jr.* to Purchasing Agent.

Convair: *Anthony Angelo* was promoted to Operations Supervisor-Manufacturing . . . *Harold R. McCaslin* to Director, Estimating . . . *Francis E. Rockenback* to Chief, Manufacturing Control . . . *Dwain B. Bowen* to Senior Project Engineer . . . *Harold C. Schleicher* to Engineering Chief . . . *Bernard J. Wier* to Director, Division Productivity.

Electric Boat: *Robert Smith* was promoted to General Foreman . . . *William Kowenhoven* to UK Program Manager . . . *Kenneth Wohlleben* to Supervisor, Quality Assurance . . . *Calvin Barton, William Blaisdel, Joseph Boyle, Alan Caval, Christopher Constantine, Michael Dennis, Pierre Drouin, Theodore Fondulas, Jerry Freidel, Henry Gondek, Michael Grafe, James Hannan, Sara Hummel, Scott Hurley, Edward Kokoski, Philip Krey, Nathan Jamerson, Edward Jones, Robert Smelings, Kenneth Tremblay* and *Mark Warburton* to Foreman . . . *Charles Beckman* to Design Supervisor . . . *Paul Bennett* to Senior Test Operations Engineer . . . *Robert Grills* to Manager-NDT Product Development . . . *John McGovern* to Chief of Administration & Cost Control . . . *Paul Roy* to Senior Supervisor, Material Planning . . . *Charles Coleman* to Engineering Supervisor . . . *Gerald Miller* to Chief, Program Management . . . *Karen Walsh* to Staff Assistant . . . *John Helming* to Nuclear Ship Manager . . . *Charles Huckle* to Ship Superintendent . . . *William Labonte* to Supervising Engineer, RPS . . . *Howard Smith* to Foreman-Mobile Control.

DSD: *D. J. Schultz* was promoted to Technical Specialist at Western Data Systems Center . . . at Eastern Data Systems Center, *W. Anderson* to Programmer/Analyst, *C. MacDonald* to Computer Systems Specialist and *M. Sherman* to Computer Systems Analyst.

Pomona: *Winifred L. Breckner* was promoted to Manufacturing Control Coordinator . . . *Gregory E. Brobston, Dennis G. Buchanan* and *Denise K. Holmes* to Project Representative . . . *Vincent O. Burkhard, Albert I. Derby Jr.,* and *Wayne A. Stanley* to Chief, Estimating . . . *Sarah J. Cagle* to Material Liaison Representative . . . *Ray D. Gunn* and *Robert F. Ulloa* to Project Administrator . . . *Scott P. Higgins* to Chief, Training & Development . . . *Herman C. Martin* to Manufacturing Engineer . . . *Phillip D. Philson* and *Robert C. Thacker* to Manufacturing Test Engineer, Senior . . . *Gary Wilson* and *Richard Stein* to Quality Assurance Specialist, Senior . . . *Eric R. Baker* to Procurement Administrator . . . *Billie J. Cade* to Engineering Group Supervisor . . . *Grady K. Cochrane* to Senior Buyer . . . *Roberta L. Denny* and *Gerald L. Rich* to Quality Assurance Specialist . . . *Marcus Houston* to Manufacturing Supervisor . . . *Wanda J. Johnson* to Superintendent . . . *Michael R. Maestri* to Cost Control Administrator . . . *Gary W. Panzer* to Group Engineer . . . *Robert D. Salyer* to Manager, Manufacturing & Material Control . . . *Steven C. Winders* to Logistics Representative . . . *Robert P. Clayton* to Inspection Chief at Camden . . . *Terence C. Reed* to Supervisor, Material Requirements at Camden.

GDCC: *Bill R. Sheperd* was promoted to Projects Manager-Major Accounts . . . *Robert B. Crowe* and *Jerry L. Eiland* to Sales Manager.

DatagraphiX: *David B. Hartley* was promoted to Sales Manager, Supplies.

Electronics: *Sandra Schussler* was promoted to Production Control Specialist . . . *Ralph S. Vernor* to Factory Engineer . . . *Larry Cunningham* to Project Manager, Senior . . . *Norman Dahl* to Manager of Production Control . . . *Roger Danielson* to Purchasing Agent . . . *Charles Ebeling* to Principal Engineer/Manufacturing Group Leader . . . *Daniel Ellingson* to Manager, Advanced Manufacturing Technology . . . *Donnelly Kolesar* to Superintendent . . . *David O'Brien* to Manager of Finance . . . *Marcell Reynante* to Manager of Quality Assurance . . . *George Ryan* to Procurement Administration Supervisor . . . *Jimmy R. Zak* to Procurement Section Head . . . *Duncan MacTavish* to Product Test Engineering Specialist . . . *Melvin Peabody* to Director of Division Productivity.

Air Force Trainer. *Hal Goebel, Electronics Project Engineer, begins checkout on the first F-16 AIS trainer built by Electronics for the U.S. Air Force. Six of these units are to be installed at Lowry AFB, Colo., where AIS training is given.*

3 Convair Suggestors End 1981 Sharing $10,000 Award Money

Three Convair employees shared in suggestion awards totalling more than $10,000 as 1981 ended. Two of the suggestions resulted in cost savings on the Boeing 767 strut program, while the third reduced maintenance costs on digital controlled milling machines.

Wayne Willett, an assembler on the 767 strut program, received $4,870 for his suggestion that all of the fastener locations in the 767 strut raceway assembly be prepunched, avoiding the hand layout, drilling and deburring of approximately 350 holes. In addition, since the strut raceway is made from Inconel 625, a metal that is extremely difficult to drill, each of the holes under the old method required the use of a new drill bit. The first year net savings for this suggestion were estimated to be $48,698.

Steven L. Baillif, a manufacturing dispatcher at Lindbergh Field, noted that some parts that were stamped with standard "DIB" stamps were failing during subsequent heat treating. This failure was attributed in one case to " . . . the sharp notch in one of the steel stamped numerals."

Baillif suggested that existing stamps be replaced by a stamp which uses a series of dots to form the number, rather than solid lines. By eliminating a possible cause of failure and scrapping, his suggestion was estimated to save the company $23,700 the first year, and Baillif was awarded $2,370.

Danny Duckworth, a maintenance mechanic, also at Lindbergh Field, was given a check for $3,439 for his suggestion that made two changes to the profile milling machines. The first part of the suggestion involved the installation of brushes around the gaps in the machines' gear boxes to keep metal chips from falling into the boxes. The second pointed out that the compressed air for the mills was supplied by an air line that operated 24 hours a day, 350 days a year. He recommended that this air line be equipped with solenoid valves which restricted the air until there was a movement command.

The second part of his suggestion resulted in an 80 percent savings of compressed air, plus considerable energy savings. His award included a 25 percent Energy Saving Bonus.

Electronics Begins Delivering AIS Trainers for U.S. Air Force

Electronics Division will begin delivering the first of six F-16 Avionics Intermediate Shop (AIS) trainers to Fort Worth this month.

The $4.9 million contract came from an unsolicited proposal from Electronics to the U.S. Air Force. The trainers are to be installed at the Air Force's Technical Training Center at Lowry AFB, Colo., and will save the Air Force the cost of using fully-operational AIS units in the training course at Lowry.

It is possible that additional trainers could be ordered, because the cost, about one-sixth of a single shop station, makes the trainer an attractive alternative for on-the-job training without tying up a full AIS.

The trainer uses actual test data from the F-16 AIS and presents students with real-world problems in fault isolation on F-16 avionics in a manner that can be controlled by an instructor.

The key to the development of the trainer, according to Jim Flynn, Electronics Program Manager, was the development of record-keeping software, so that the data from an avionics unit under test could be recorded for future use.

The contract calls for Electronics Division, working with Fort Worth, to design and manufacture six trainers and ancillary equipment; design and develop the associated software to allow capture and playback of test data; develop the necessary technical publications for the trainer, and provide the training services that would integrate the trainer's capabilities into the existing Lowry AIS course.

The trainer provides both the visual and operational characteristics of the existing AIS test stations and supplements the existing test stations in accomplishing specific training objectives.

This is done not only by capturing actual fault data, but also by having the capability of modifying this captured data into a wide range of realistic program failures. The instructor can then provide the student with a number of real-life situations likely to be met in the field under operational conditions.

The trainer consists of two parts: an operator's console containing keyboard, viewing screen and printer, and a rack cabinet containing the F-16 AIS computer elements plus an additional disc drive. The trainer has an 80 percent commonality with Electronics' F-16 AIS shops now installed at 15 locations worldwide.

YWCA of St. Louis Honors GD Women

Seven General Dynamics employees have been recognized by the YWCA of St. Louis for their achievements and service.

The women, who work either at the corporate office or at General Dynamics Communications Co. (GDCC), were presented Certificates of Leadership for their contributions to the economic, cultural and civic life of the St. Louis area.

Honored were: Marlene E. Carver, Corporate Manager-International Operations; Cynthia A. Croft, Senior Auditor-Administrator; Jean C. Dobbs, Manager, Customer Training-GDCC; Freda Monk, Corporate Planning Administrator; Florence D. Stark, Corporate Administrative Assistant; Mary Ann Tipton, former Corporate Office Personnel Manager, and Regina M. Wischmeyer, Manager Office Administration-GDCC.

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Several Key Actions Involve 100 F-16s For Three Nations

Pakistan's purchase of 40 F-16s has cleared through the U.S. Congress, and the first six of those aircraft are to be delivered to that country within 12 months.

Congress, meanwhile, has been notified of the U.S. Government's intention to sell 24 F-16s to Venezuela.

In another significant action, the government of South Korea signed formal papers for its purchase of 36 F-16s, with deliveries starting in February 1986 at the rate of one a month.

Fort Worth to Design Automated System for Parts Production

Fort Worth has been awarded a $780,000 contract by the U.S. Air Force Materials Laboratory for the first phase of an Advanced Machining Systems (AMS) program intended to improve productivity in manufacturing machined aircraft parts.

"The 14-month contract calls for the preliminary design of flexible and integrated manufacturing system approaches for automated, low-cost fabrication of precision machined parts in small lot size production," said Chester Beaird, Fort Worth Manufacturing Technology Project Engineer.

A flexible manufacturing system is a series of machining and associated work stations for cleaning, deburring and inspecting which are linked by a common control to provide for automatic production of a family of aircraft components through a series of tasks.

The goal of the AMS program is to determine whether a flexible and integrated system is technically and economically viable.

In Phase II of the program, one of the three contractors chosen for the initial part of the study will build the flexible machining system (FMS) and put it into production. Further technologies necessary for integration into the total factory management system will be developed under the third phase of the program.

Aircraft Voice Command System Being Developed by Fort Worth

Pilots flying the advanced F-16 Falcon may be aided by computers which respond to their verbal commands.

The use of voice command in fighter aircraft is currently under study and evaluation at Fort Worth. A flight qualified voice command system will be flown this year in the joint Air Force, Navy, NASA and General Dynamics' Advanced Flight Technology Integration (AFTI) Program F-16.

In recent years, advances in solid-state technology have made it possible to perform more avionics functions in smaller volumes. Increasing the system complexity also increases the workload for the pilot. He must simultaneously fly the aircraft as well as operate the offensive, defensive and communications equipment. Ways of redistributing the workload are being addressed creatively through the use of voice recognition equipment.

"Voice command can potentially allow the pilot to select navigation modes, weapons delivery configurations, communications channels and radar mode control without using his hands," said Al Godwin, Principal Investigator of the Voice Command Program at Fort Worth.

Commercial voice recognizers have been available for several years and have achieved good results in relatively stable environments. Fort Worth has taken the lead in developing a voice recognizer that would be capable of overcoming factors peculiar to the airborne environment, such as the oxygen mask, background noise, vibration and the effects of physical and emotional stress on the human voice.

Some of these factors were individually reproduced at the Air Force Aerospace Human Resources Laboratory. A 15-word vocabulary was selected to be repeated in random fashion by test subjects under various test conditions and recorded on audio tape. The resulting tapes are being used to identify and to help control those factors that are the major sources of error.

Testing is being done to determine the possible benefits in using voice command and the best method for incorporating it into the modern fighter aircraft. The facility used is the Research and Engineering Simulator at Fort Worth, a fixed-base flight simulation system that features a visual scene projected on a 24-foot dome.

Any type of cockpit configuration can be operated within the dome, and the one chosen for the continuing research is that of the AFTI/F-16. During an initial test series, former military pilots "flew" a low-level, air-to-ground mission in the simulator, using voice commanded, dual-multipurpose cathode ray tube displays in the cockpit. The pilots agreed that voice command produced the lowest workload and was very effective in the single-seat fighter.

The Instrument Division of Lear-Siegler, Inc., using information gained from Fort Worth's research, is building two flyable voice command subsystems for the flight test program that will begin later this year.

"It is anticipated that the voice command program at Fort Worth will result in the first voice recognition system to be designed for and tested in military aircraft," Godwin said. "The result will constitute a significant advance in command and control of aircraft systems."

Third Intelsat V Boosted to Orbit By Atlas-Centaur

A Convair-built Atlas-Centaur booster successfully launched an Intelsat communications satellite last month from Cape Canaveral AFS, Fla.

The December 15th launch boosted the third in a series of nine advanced international telecommunications satellites that are owned and operated by the 106-nation International Telecommunications Satellite Organization (Intelsat).

After liftoff, the Atlas-Centaur initially placed the 4,110-pound satellite into a highly elliptical transfer orbit ranging from 103 miles to 22,347 miles. Launch controllers refined the orbit during the next two days and then fired the satellite's solid propellant rocket motor. This maneuver, according to NASA, circularized the orbit of the satellite at geosynchronous altitude over the equator.

The Intelsat V, built by the Ford Aerospace and Communications Corp., has almost double the communications capability of satellites in the earlier Intelsat IV series — 12,000 simultaneous two-way voice circuits and two color television channels.

The Atlas and Centaur stages arrived at the Air Force station on May 27, 1981 for checkout. The Atlas stage was erected on July 16th and the Centaur was attached two days later. The Intelsat communications satellite was mated to the Atlas-Centaur launch vehicle in early December.

Atlas-Centaur, including nose fairing, towers 134 feet. Total liftoff weight is 326,120 pounds. Liftoff thrust is a powerful 431,000 pounds.

* * *

Atlas-Centaur Marks 4th Consecutive Year Of Flawless Launches

The successful launch of the Intelsat on December 15th marked the fourth consecutive year of flawless performance by Convair's Atlas-Centaur launch vehicle.

During the past year, NASA called on the reliable Atlas-Centaur to launch four communications satellites. Three Intelsat V satellites are scheduled for launch by Atlas-Centaur this year.

Recapping 1981, the Convair-built launch vehicle boosted a COMSTAR payload in February, an Intelsat V in May, a Fleet Satellite Communications payload in August and the most recent Intelsat in December.

Atlas-Centaur 58 is already at Cape Canaveral in preparation for the next Intelsat V launch in March. Atlas-Centaur 60 is in the assembly building in San Diego and will be shipped to Florida late this month for another Intelsat V launch in May. Four additional Atlas-Centaurs are in production for Intelsat.

EB Will Provide Sampling Systems For Nuclear Utility

Electric Boat's Reactor Plant Services Group has been awarded a contract valued at approximately $700,000 to provide post-accident sampling systems for two nuclear generating stations in Texas.

The two systems are similar to those provided by Reactor Plant Services to Northeast Utilities for the Millstone 1, 2, and 3 nuclear stations in Waterford, Conn., and the Connecticut Yankee nuclear station in Haddam Neck, Conn.

Delivery of the first post-accident sampling system is set for May 1982, while the second system is scheduled for delivery in August.

Fighter Aircraft Oxygen System Developed for AF by Fort Worth

Flight testing of an on board oxygen generating (OBOG) system will be conducted early this summer in an F-16 under a $2 million contract awarded by the F-16 System Program Office at the U.S. Air Force's Aeronautical Systems Division.

The OBOG system is being developed for the flight test by Fort Worth based on research done at the Air Force School of Aerospace Medicine, Brooks AFB, Tex. If it proves successful, it could replace the present liquid oxygen system used in most fighter aircraft today.

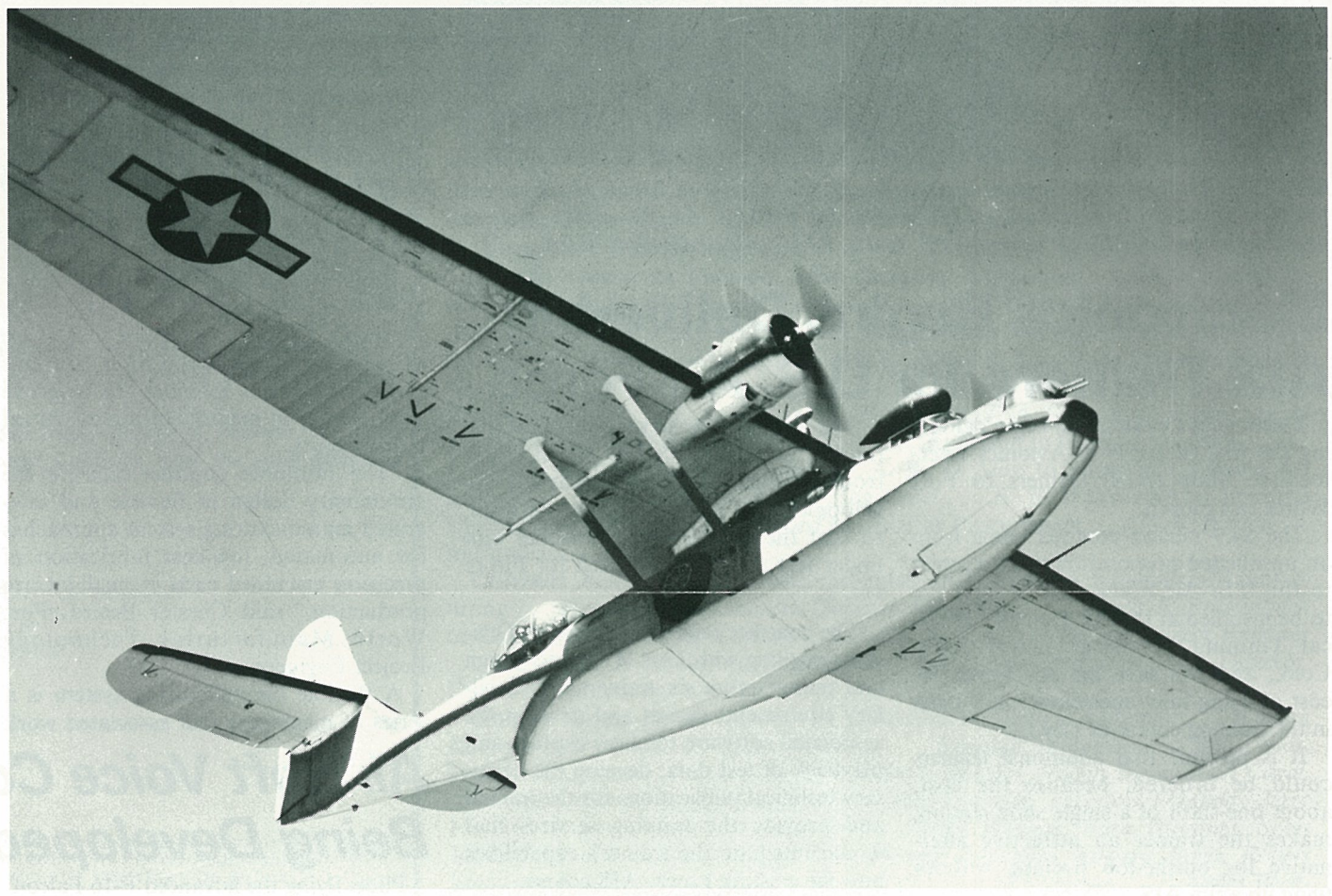
Under the OBOG system, engine bleed air is filtered through a molecular sieve to produce oxygen for the pilot, according to M. J. Grandia, Division Manager of the development, demonstration and evaluation program.

The first OBOG unit, manufactured to Fort Worth's specifications by Bendix Corp., is scheduled to be delivered to Brooks in March for performance testing and evaluation. A unit will then be installed in an F-16 at Fort Worth for the flight testing which will be done at Edwards AFB, Calif.

"If the technology in our demonstration program proves out, we feel it will be the aircraft oxygen system of the future," said Maj. D. A. Bernia of the school's Program Acquisition Division. "It could be the best thing to happen to military aircraft in the past 20 years."

Grandia said a few of the benefits of the OBOG system would be a speedup in the turnaround time for aircraft flying multiple sorties and reduction of the logistical problems of supplying liquid oxygen to forward bases.

GD Flashback



The PBY Catalina

WWII Catalinas Were Loved by Allied Airmen

It is difficult to think of an airplane more beloved by the Allies in World War II than the Consolidated PBY Catalina. The durable flying boat saved many Allied lives in rescue operations that have since become legend, but it also had a solid combat punch. In the Pacific, Catalinas, called Dumbos after Walt Disney's celebrated flying elephant, often landed on the water within the range of enemy gunfire to rescue airmen who had been shot down or sailors whose ships had been the victims of Japanese torpedoes. On one mission, a single Dumbo took off with 56 survivors from a sunken destroyer.

But not all the PBY's missions were flights of mercy. In addition to operating as cargo planes and personnel carriers, PBYs were used in their primary roles as patrol planes and bombers from the frigid Aleutians to the sweltering South Pacific. They served as torpedo planes that were greatly feared by the Japanese; and as makeshift dive-bombers, they often dropped their bomb loads so low that they became targets for enemy machine gunners on the ground.

The PBY also was active in the Atlantic, where it was used chiefly in a combined air-sea antisubmarine role.

It was a Royal Air Force (RAF) Coastal Command Catalina patrolling the North Atlantic which spotted the German super battleship *Bismarck* in May 1941 after it had sunk the British battleship *Hood.* Two Catalinas shadowed the ship until units of the Royal Navy were able to make contact and sink the *Bismarck.* RAF PBYs were also credited with participating in the sinking of at least one Italian and two German submarines.

It was only a few months later in the Pacific, on Dec. 7, 1941, that a U.S. Navy Catalina spotted the periscope of a midget Japanese submarine off the entrance to Pearl Harbor. The pilot marked the spot with a smoke bomb and relayed the position to an American destroyer which sank the intruder.

The last two aircraft to leave Corregidor in the Philippines were PBYs; a PBY located the Japanese attack force heading for Dutch Harbor in the Aleutians; another located the Japanese fleet approaching Midway Island, and a PBY was the first to attack a Japanese ship to open the Battle of Midway.

The Catalina was the brainchild of Consolidated's I. M. (Mac) Laddon, America's foremost designer of flying boats. It was a rugged, versatile and dependable airplane which incorporated a number of innovative ideas.

The first production PBY was rolled out of Consolidated's San Diego plant and launched in San Diego Bay less than a year after the new plant had been dedicated in 1935; by August 1945, Convair workers had built a total of 2,393. More Catalinas were built by Canadian Vickers; Boeing, at its Vancouver plant, and the Navy's aircraft factory in Philadelphia.

The Catalina traces its history to Oct. 23, 1933, when the Consolidated Vultee Aircraft Corp. was still at Buffalo, N.Y. The U.S. Navy gave the company an order for one experimental airplane, designated the XP3Y-1. The prototype was flown at Hampton Roads, Va., on Mar. 23, 1935. After test flights at Norfolk in October 1935, it was returned to the factory for more powerful engines and redesignated the XPBY-1.

The Navy, impressed by the obvious potential of the plane even before it was fitted with the new engines, ordered 60 planes on June 29, 1935. Before long, the Navy ordered 50 more, designated PBY-2. In 1938, the Catalina was released for export, and the Soviet Union bought three PBY-3s along with a manufacturing license. Several hundred were built by the USSR as the GST for the Russian Navy.

The RAF, which had named the flying boat the "Catalina," wasn't the only non-naval force to use the PBY. Consolidated Vultee's New Orleans plant built 75 aircraft for the U.S. Army Air Forces, which designated them as OA-10Bs and used them for air-sea rescue.

During World War II, more PBYs were built than any other flying boat, and during and after the war, it served with more than 20 countries, spreading the respect and affection for the Catalina worldwide.

Electronics Awarded $15.2 Million Contract For Training Center

Electronics has received contracts totaling $15.2 million to install 375 additional player units and interrogator and interrogator/relay stations at the U.S. Army's National Training Center, Fort Irwin, Calif.

The additional units will give the Army the capability of instrumenting a total of 500 ground vehicles, aircraft and individual soldiers and linking them to a range data measuring system that monitors their activities, provides communications and determines position location during training exercises.

The contracts, received through the prime contractor for the range, AMEX Systems, Inc. of San Diego, are in addition to the original contract of $11.3 million.

General Dynamics to Acquire Chrysler Defense, Inc.

Chrysler Defense Inc., which produces M1 and M60 tanks for the U.S. Army, will be acquired by General Dynamics from the Chrysler Corporation for $348.5 million.

Announcement of the sale was made on February 19th; however, the purchase is contingent on the approval of certain Government agencies. These approvals are expected to be received and the purchase finalized in the next several weeks.

David S. Lewis, Chairman and Chief Executive Officer of General Dynamics, said that General Dynamics "is pleased that it will have the responsibility for the very important U.S. Army tank development and production currently under contract to Chrysler Defense, Inc. (CDI)."

This operation, which employs more than 7,000 persons in five plants in Michigan, Ohio and Pennsylvania, had sales in 1981 of more than $800 million.

"Production rates of the Army's new M1 Abrams main battle tank are increasing as the initial development program is largely completed," Lewis said, "while significant sales continue on the earlier M60 tanks being delivered to a number of our country's allies."

Lewis said that "this operation has substantial potential for increased sales and earnings in the years ahead, and we believe it fits very well with the other major General Dynamics divisions, where principal contracts are on defense programs."

Lewis added that the demonstrated skills and dedication of the people at Chrysler were important factors in the decision to acquire the company.

"CDI is a company organized along lines that are not too different from those of General Dynamics," Lewis said. "We expect to make this management transition smoothly as we work out changes in their operating procedures and systems."

Oliver C. Boileau, General Dynamics President, said that a special group has been established to work with CDI President John W. Day and other CDI officials to insure a smooth integration of CDI into General Dynamics.

The group, headed by Boileau, will meet often with CDI management in the next several weeks to gain an understanding of their policies, procedures and operations already in effect at CDI, Boileau said.

CDI, a separate division of Chrysler since 1954, has been producing tanks since 1941 and is the largest developer and manufacturer of combat tanks in the Free World. Its engineering expertise is highly regarded in the defense business community.

CDI operates two Government-owned tank manufacturing facilities at Warren, Mich., and at Lima, Ohio, and three other facilities in Michigan and Pennsylvania that support tank development and manufacturing operations.

Continued on Page 3

GD World

Vol. 12 No. 2 February 1982

Convair Awarded NASA Contracts On Atlas-Centaur

Convair has received contracts totaling $26.5 million from NASA for continued management/engineering and launch services for the Atlas-Centaur launch vehicle.

The division received $7.8 million for Atlas and Centaur management and engineering support at San Diego and $18.7 million for launch services at Cape Canaveral, Fla.

The one-year contracts from NASA's Lewis Research Center, Cleveland, Ohio, are follow-ons to previously awarded contracts to support the Atlas-Centaur program. The Lewis Research Center has management responsibility for Atlas-Centaur development and operation. NASA's John F. Kennedy Space Center in Florida is assigned vehicle checkout and launch responsibility once an Atlas-Centaur vehicle reaches Cape Canaveral.

Convair launch operations personnel at Cape Canaveral are now in the process of readying Atlas-Centaur 58 for launch of the fourth Intelsat V communications satellite in March. NASA will also launch two other Intelsats during the year using Convair's dependable Atlas-Centaur launch vehicle; two more are in production for launches in 1984.

Continental Telephone Places $75 Million Order with Stromberg

Stromberg-Carlson and Continental Telephone Corporation have signed a three-year agreement valued at up to $75 million for digital telecommunications equipment.

"Our decision to purchase Stromberg-Carlson digital central office systems follows an extensive technical performance evaluation by several of our operating companies throughout the United States," said Donald W. Weber, Vice President of Telephone Operations for Continental. He said the agreement is part of Continental's commitment to upgrade local office services by providing advanced telecommunications features to its more than two million customers.

"We have already received orders under this agreement for more than $15 million in digital equipment with delivery beginning in April this year," said James M. Bridges, President of Stromberg-Carlson. "An important element of this agreement provides for the continuation of joint network planning activities between our companies to better meet the long-term needs of the public," he said.

The System Century digital central office system can serve up to 32,000 subscribers using local and/or remote line switches. More than 200 of these advanced systems are now in service.

F-16 Falcons are Assembled on Fort Worth's Mile-Long Assembly Line

Air Force Awards $3 Billion Contract for F-16s; Multiyear Purchase Expected to Save $350 Million

In an action expected to save the U.S. Government a third of a billion dollars over the next four years, the U.S. Air Force awarded Fort Worth Division a multiyear contract that will lead to the production of 480 F-16 Falcons from FY 1982 through FY 1985.

At a ceremony marking the signing of a $480.5 million advance procurement contract under the program, Air Force General Robert T. Marsh, Commander of the Air Force Systems Command, said, "Multiyear procurement is one of the real savings approaches to the acquisition business — frequently we talk about things that hold the promise of savings, but it is inherent in the technique (of multiyear procurement)."

Through a multiyear contract, the government makes a long-term commitment to the contractor. This commitment gives the contractor the stability to purchase materials and fabricate components in economical quantities. The result is that the contractor can offer the government reduced unit prices.

Commenting on the contract at the ceremony, David S. Lewis, Chairman and Chief Executive Officer of General Dynamics, said, "It's significant that in this challenging multiyear procurement, we are including the first big model change — from the F-16A and B to the C and D. I don't think there's anyone who believes it will be easy, but I don't think anyone believes we won't do it."

See Photo Page 2

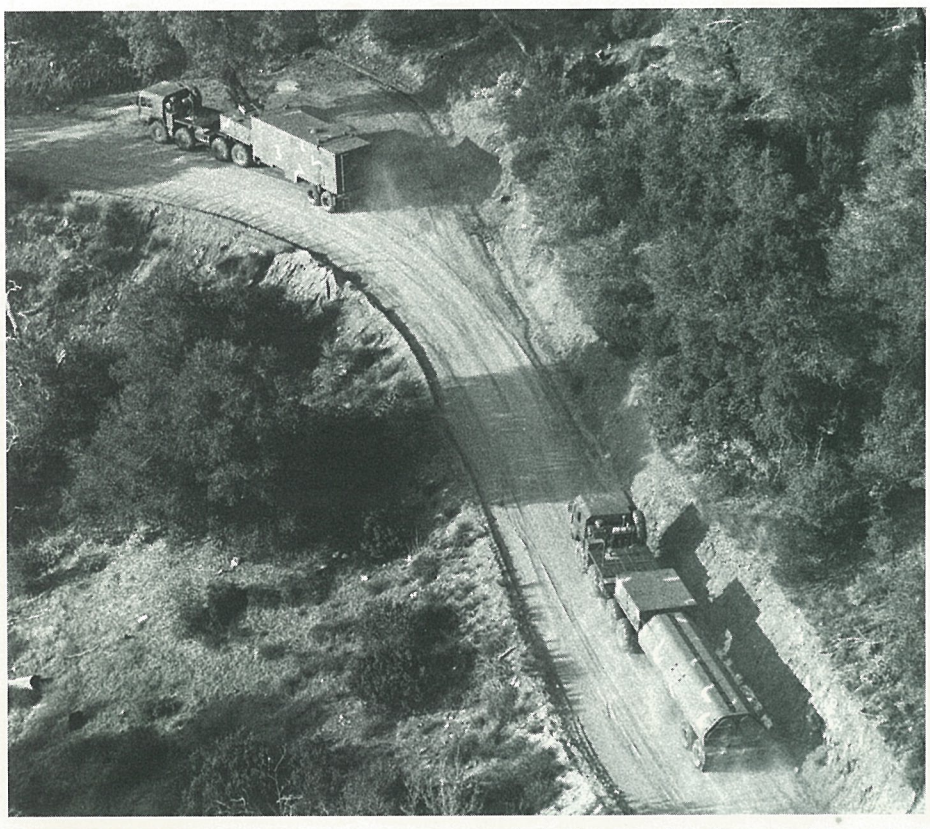
After comparing proposals of four annual buys to a single four-year contract for the F-16, the Air Force determined the multiyear approach would save the government $350 million, on an aircraft purchase that is expected to total approximately $3 billion.

"Multiyear contracting is a tool that offers the potential for revolutionizing our way of doing business," said Gen. Marsh. "With this agreement we are taking a giant step in improving how we manage our programs and more importantly, how we spend the taxpayers' dollars."

In the past, legislation prevented the Air Force from entering into multiyear agreements for major programs. However, the 1982 Defense Authorization Bill contained provisions permitting multiyear awards for major weapons systems such as the F-16.

The author of the multiyear contract bill, U.S. Representative Dan Daniel, Democrat of Virginia, spoke at the ceremony, describing multiyear procurement as "a breakthrough that has been a long time coming."

Norman E. Day, Director of Material at Fort Worth, said, "This provides us with a solid production base into mid-1987. It means that planning, material requirements, lead times and manpower are all stabilized until then."



GLCM Mobility. *The Convair-designed-and -built Tomahawk ground-launched cruise missile launch control center (top) and transporter-erector-launcher conduct road tests prior to delivery to the U.S. Air Force.*

GLCM Launcher, Control Center Delivered for Test Series in Utah

Convair has delivered the first transporter-erector-launcher (TEL) and launch control center (LCC) for the U.S. Air Force Tomahawk ground-launched cruise missile (GLCM) weapons system.

The TEL and LCC left Convair for Dugway Proving Ground, Utah, where they will be used to launch a number of Tomahawk cruise missiles prior to operational deployment of the system in late 1983.

The TEL is a mobile launch platform which provides transport, protection, elevation and launch support of four nuclear-capable Tomahawk cruise missiles. The TEL — nearly 56-feet long — is designed for rapid movement from main operating bases to remote launch locations.

The LCC contains the communications and weapons control equipment necessary for its two-man crew to target and launch the missiles. The LCC is approximately 57 feet long and has the same mobility as the TEL.

The prime movers for both the TEL and LCC are 10-ton tractors built by Maschinenfabrik Augsburg Nurenberg (M.A.N.), of the Federal Republic of Germany. Both units and their tractors are air-transportable by C-130, C-141 and C-5 aircraft.

The mobile GLCM is designed to improve NATO's theater nuclear deterrent capabilities and will be operated by the U.S. Air Force during deployment in Western Europe. The basic GLCM combat unit will consist of 16 Tomahawk cruise missiles loaded on four TELs with two LCCs for command and control.

Following arrival of the equipment at Dugway, Convair will conduct two GLCM launches over the Utah Test and Training Range; the Air Force will carry out eight additional flight tests.

Long-Term Commitment. *At the ceremony marking the signing of a $480.5 million advance contract for the multiyear procurement of the F-16 were (from left): USAF Gen. Robert T. Marsh; Congressman Dan Daniel, Democrat of Virginia, and GD Chairman and Chief Executive Officer David S. Lewis. (See Story Page 1)*

Savings and Stock Investment Values

	Dec. 1979	Dec. 1980	Dec. 1981
Salaried			
Government Bonds	$2.2795	$2.4964	$2.7892
Diversified Portfolio	1.6217	2.1720	2.0894
Fixed Income	1.0474	1.1547	1.2834
Hourly			
Government Bonds	2.2796	2.4943	2.7866
Diversified Portfolio	1.6596	2.2163	2.1335
GD Stock	$30.2500*	$42.7500*	$24.5000

* Reflects 2 for 1 stock split of November 1980.

F-111 Aircraft Being Restored In Fort Worth/USAF Effort

Four U.S. Air Force F-111s and an FB-111 are currently being restored at Fort Worth using some of the same production tools that they were manufactured with more than a decade ago.

The restoration is a joint effort of Fort Worth and the Sacramento Air Logistics Center at McClellan AFB, Calif. Many spare parts are being supplied by that depot; others are being manufactured in Fort Worth or came from aircraft stored at Davis Monthan AFB, Ariz.

Restoration schedules for the aircraft vary depending on the type and extent of damage, according to Jerry Parris, manager of the rebuilding program.

Two of the aircraft, an F-111A and an F-111D, were damaged by fires; an F-111E received nose damage when a takeoff was aborted; another F-111E had bulkhead damage when a pressure bottle for the escape system ruptured, and the FB-111 was damaged when the drag chute of a weapon was accidentally deployed.

Several time compliance technical orders are being accomplished on all of the aircraft as part of the rebuilding process. These changes are normally performed at the Sacramento depot.

Parris estimated that about 1,200 different parts, ranging in size from small access panels to large bulkheads, will be manufactured at the division during the restoration program.

The program follows the successful rebuilding of a crash-damaged FB-111 in the fall of 1980.

About 125 persons, some of whom worked on the F-111 production line, are involved in the rebuilding program.

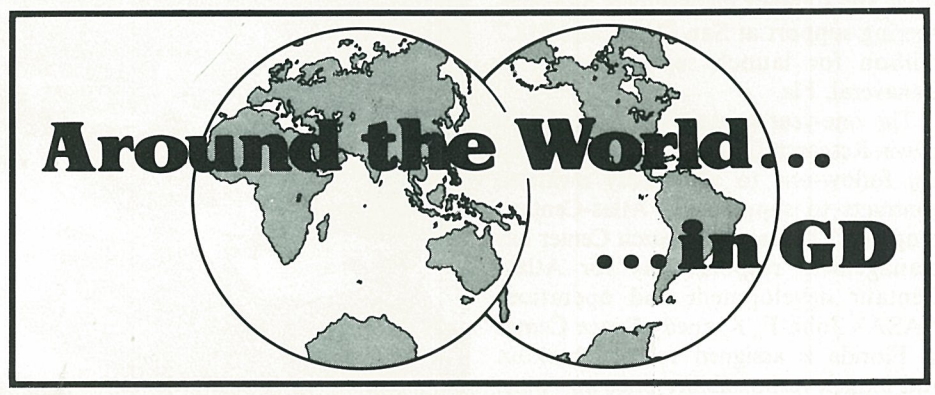
USAF Pilots Pass 100,000 Hours Flying the F-16

Last month, just three years after the first F-16 was delivered from Fort Worth to a tactical unit, U.S. Air Force pilots surpassed 100,000 flying hours in the Fighting Falcon. The USAF F-16 fleet now consists of 345 aircraft.

Tactical Air Command pilots at three bases have logged the majority of the hours, more than 85,000.

F-16s assigned to TAC bases are stationed at Hill AFB, Utah, MacDill AFB, Fla. and Nellis AFB, Nev.

Pacific Air Forces has 40 F-16s stationed at Kunsan AB, Korea, and 14 test F-16s are flown at Edwards AFB, Calif., and Eglin AFB, Fla., by Air Force Systems Command and TAC pilots.



CHQ: *Steven E. Dorsch* transferred from Convair and was promoted to Corporate Manager, Cruise Missile Systems . . . *James K. Shillito* transferred from Convair and was promoted to Auditor . . . *Doyle L. Smith* was promoted to Manager, Internal Audit.

Fort Worth: *R. G. Bradley Jr.* was promoted to Engineering Manager . . . *C. R. Crabb* and *W. W. Nunn* to Project Manager . . . *L. V. Curtis* to Field Service Engineer . . . *B. F. Dimock 3d* to Logistics Engineer . . . *R. Gilley* to Project Coordinator . . . *V. V. Gilley* to F-16 Production Manager, International . . . *H. E. Henley 3d* to Contract Proposal Estimator . . . *H. E. Heyns* and *J. W. Littell* to Program Specialist . . . *D. R. Hibler* to Manufacturing Control General Supervisor . . . *M. L. Jaggars* to Manufacturing Control Supervisor . . . *D. D. Keaton, C. L. McNulty, T. D. Voss* and *M. L. Moon* to Manufacturing Technology Supervisor . . . *J. W. Moore* to Project Engineer . . . *V. R. Reeder* to Logistics Supply Analyst, Senior . . . *J. D. Breding* to Engineering Group Supervisor . . . *J. R. Smith* to Manager, F-16 Plans and Controls . . . *W. J. Wilson* to Engineer, Senior . . . *J. B. McGoodwin* to Manager of Facilities Engineering.

Electronics: *William G. Dill* to Manager — Operations Program Control . . . *R. A. Izzarelli* to Section Head — Operations.

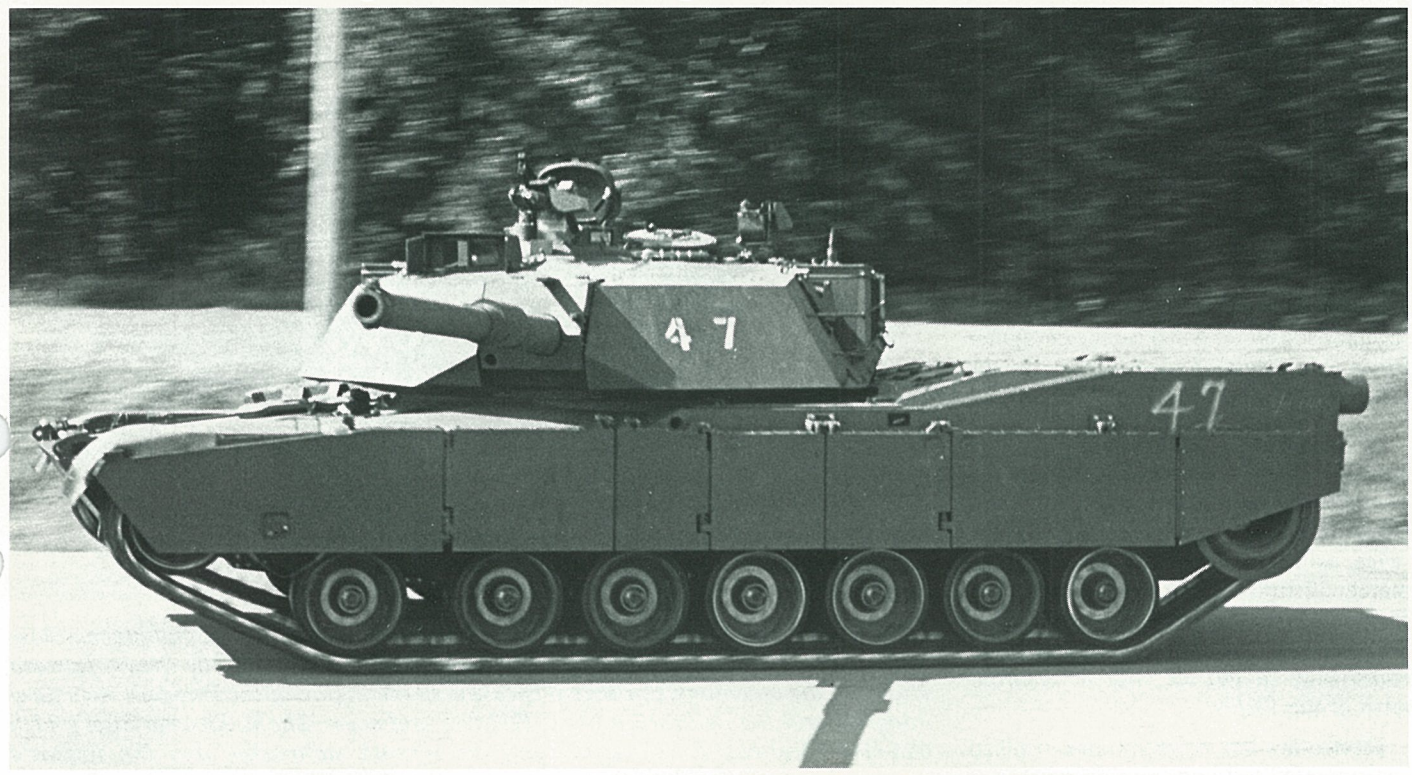
Convair: *Larry J. Pierce* transferred from St. Louis and was promoted to Chief — Finance.

Pomona: *L. E. Black* and *R. J. Connor* were promoted to Project Administrator . . . *L. J. Husted* and *A. Stein* to Chief, Production Support . . . *S. R. Killion* to Laboratory Group Engineer . . . *E. O. Lai* to Field Service Representative, Senior . . . *W. L. Olin Jr.* to Senior Buyer . . . *P. Pond* to Logistics Representative, Senior . . . *V. R. Vastine* to Facilities Specialist, Senior . . . *M. H. Winkler* and *R. B. Walters* to Group Engineer . . . *F. E. Adams* and *F. J. Robles* to Electronics Engineer, Senior . . . *K. P. Daugherty* to Plant Engineering Supervisor . . . *C. M. Farrar* to Administrative Services Supervisor . . . *E. Filho* and *H. R. Nabb* to Manufacturing Supervisor . . . *D. T. Flynn* to Manager, Production Support . . . *T. D. Rhoads* to Project Staff Engineer . . . *J. C. Webb* to Technical Procurement Administrator . . . At Camden, *J. L. Wood* to Manufacturing Engineer; *W. S. Mantooth* to Manufacturing Test Engineer; *M. D. Mullis* to Manufacturing Engineer, Senior; *C. San Juan* to Subcontract Administrator, Senior.

Electric Boat: *Calvin Baker* was promoted to Trident Ship Manager . . . *Frank Andrews* to Nuclear Quality Control Supervisor . . . *Paul Butsch* to Trade Planning Supervisor . . . *Daniel Lewis* to Foreman . . . *Robert Smith* to Senior Ship Superintendent . . . *Richard Weckwerth* to Group Trade Planner . . . *Francis Alix* and *James Giddings* to Nuclear Test Supervisor . . . *John Alden* to Engineering Supervisor . . . *Peter Cawley* to Chief, Radiological Control Operations and Training . . . *Dillard Cowan* to Supervisor of Planning, Material . . . *Russell Fishkin* to General Foreman . . . At Quonset Point, *Edward Langford* to General Foreman II; *William Beach* to Group Trade Planner; *Donald Maxwell* to Superintendent; *Gerald Preler* to Chief of Industrial Relations; *Joe Putnam* to Chief of Maintenance Engineering; *Eugene D'Ovidio* to Senior Supervisor, Production Support Services.

DSD: *John J. Wickersham* was promoted to Director — Industrial Relations . . . *Joseph A. Robinson* transferred from Western Center to St. Louis and was promoted to Director of Purchasing and Material . . . At the Central Center, *D. Montgomery* was promoted to Chief — Production Control; *C. R. Weidler* to Chief — Engineering Software . . . At the Eastern Center, *M. Gresh* to Programmer/Analyst Senior; *W. Lawrell* to Supervisor, Data Operations . . . At the Western Center, *M. F. Williamson* and *C. E. Scott* to Software Engineer Senior; *M. D. Beebe* to Site Manager; *G. Mick* to Program Analyst, Senior; *C. M. Gruber* to Professional Development Administrator; *G. Ruan* to Computer Systems Analyst.

GD to Acquire Chrysler Defense, Inc.



Tanks in Production. *The powerful M1 Abrams main battle tank (above) is the foremost armored combat vehicle in the Free World and is entering service with the U.S. Army. More than 13,000 M60 main battle tanks (below) have been manufactured and production is scheduled to continue through 1984.*

Continued from Page 1

More than 48,000 tanks and other combat vehicles have been built by CDI for the U.S. and its allies.

Currently, in addition to the M60 and M1 tanks, CDI holds about 50 defense-related research and development contracts, and has reached an agreement to provide the Republic of Korea with engineering and technical data required for production by Korean industry of a new tank design.

CDI has been the only producer of the M60 tank since it entered production in 1960. It has built more than 13,800 M60s and has a contract for production through 1984.

The M60 is being replaced by the M1, which is the object of the largest peacetime procurement in U.S. Army history.

305 M1s Delivered

The Army awarded a contract to CDI for the M1 in 1976, and present plans are to buy 7,058 M1s through 1989 at a total cost of $18 billion. CDI delivered a total of 305 M1s through January 1982. Plans call for a combined production of the M1 at the Lima, Ohio, and Detroit plants to reach 60 tanks a month in January 1983.

In July 1981, CDI received a $4 million contract for 11 prototype High Mobility Multi-Purpose Wheeled Vehicles designed to replace the 'Jeep' as the Army's general-purpose vehicle. Delivery of the prototypes is scheduled for April.

Potential production in the program, scheduled to begin in mid-1983, is 50,000 vehicles. Other competitors with CDI are American Motors and Teledyne.

Most of CDI facilities are government owned. The largest are the M1 tank plant at Lima, Ohio, and the M60 tank plant near Detroit, which also is being equipped to begin production of the M1.

The Lima Tank Plant, which was built in 1942, is five miles south of Lima, halfway between Toledo and Dayton. It employs 1,900 persons and has more than one million square feet of manufacturing floor space on a 450-acre site. It also has a one-and-a-half mile test track.

The Lima plant is the Free World's most advanced tank operation. It was used in World War II as a tank modification center and, after expansion and modernization, became a manufacturing plant for the M1 in May 1979.

The Detroit Tank Plant, which was built in 1941, is located at Warren, Mich., north of Detroit. It employs 2,000 persons and has more than one million square feet of manufacturing floor space on almost 30 acres. It has a one-mile test track. The plant is part of the U.S. Army's Detroit Arsenal.

Chrysler produced 22,234 medium tanks at the Detroit plant in World War II, enough to equip more than 100 armored divisions. Another 1,610 tanks were modified for the British Army.

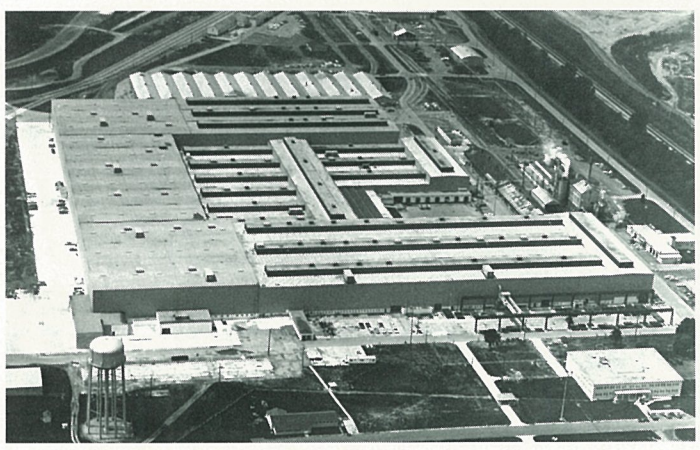
CDI also operates the Scranton, Pa., which produces components for the M60 and M1; the Defense Engineering Plant at Center Line, Mich., used for research, engineering and development projects, and the Sterling Defense plant at Sterling Heights, Mich., manufactures some tank components and also serves as the subsidiary's administrative headquarters.

CDI owns the Sterling Defense Plant and leases the Center Line Plant from Chrysler Corporation. It leases the Scranton Defense Plant from the Scranton Lackawanna Industrial Building Company.

Variety of Programs

For the past 40 years, CDI has successfully managed a variety of military and aerospace programs for key government agencies. In World War II, it committed all its domestic resources to military production. Among its military projects, CDI built more than 22,000 tanks and almost half a million tactical trucks. In World War II, the M3 General Grant, M4 General Sherman and M26 General Pershing tanks were built by CDI.

Since the end of World War II, CDI has built the M47 medium tank, M103 medium tank and M48 Patton, as well as the M60 and the M1. CDI also built a number of other vehicles and weapons, including tank retrievers, armored vehicle launch bridges, combat engineer vehicles, 155-mm. self-propelled howitzers and reconnaissance vehicles.



Lima Tank Plant. *The tank plant at Lima, Ohio, has been expanded and modernized as the sole plant in the U.S. manufacturing the M1 main battle tank. Production began in May 1979, and the Lima plant delivered its first M1 to the Army in February 1980. More than 305 had been delivered through January 1982.*

Detroit Tank Plant. *Located in Warren, Mich., the Detroit Tank Plant, currently produces the M60 main battle tank, but the plant is gearing up for production of the M1 Abrams main battle tank. By January 1983, the combined M1 production at the Lima and Detroit plants is scheduled to be 60 tanks a month.*

New Equipment Introduced by DatagraphiX

DatagraphiX has announced major new products for the computer output microfilm (COM) market, including a new recorder.

The first recorder of the new product line is the Advanced Remote Imaging System (ARIS) II. The ARIS II COM recorder incorporates laser beam imaging and dry heat processing for microfilm output.

ARIS II is configured as a 3211 printer and will record "on-line" data from the majority of IBM and IBM-compatible mainframe computers. The system uses an advanced laser imaging device developed by DatagraphiX to record data at speeds up to 12,000 lines per minute. It has a powerful microprocessor system and plain language message display.

DatagraphiX also announced plans to develop ARIS I, a telecommunications-based remote COM system for the distributive data processing environment. The system will operate with data communication links and record data on COM at speeds up to 6,000 lines per minute. This new system will make the cost saving benefits of COM recording available to data processing users in a wide variety of industries.

In addition to the introduction of the two ARIS recorders, DatagraphiX announced two significant options for its existing product lines.

AutoFEED, an option to the high-speed DataMASTER 100 Duplicator, will provide labor savings to microfilm users. The AutoFEED system allows fully automatic handling and duplication of cut fiche masters. When used in conjunction with DatagraphiX Bar Code software and the DataMASTER's collating carousel, it provides full microprocessor control of all aspects of the previously labor-intensive microfiche duplication and distribution process.

The AutoFORM option to DatagraphiX' Mini-AutoCOM recorder will provide significant cost-savings to cut fiche users through a potential six-fold increase in data compaction. The AutoFORM projection device allows automatic selection by software command of up to six different forms overlays on a single microfiche, reducing the user's costs for both the original film and duplicating processes.

China Orders More Digital Exchanges

Since a System Century® Digital Branch Exchange (DBX) was placed into service at the Diaoyutai State Guest House in Beijing last year, Stromberg-Carlson has received orders for additional DBXs from the Peoples Republic of China.

"The technical superiority of our product and the excellent performance of the State Guest House system were key elements in the decision to purchase additional systems," says James G. Hagen, Senior International Marketing Manager at Stromberg-Carlson's Public Switching Center in Lake Mary, Fla.

System Century DCO On Island of Guam

A 7,000-line Stromberg-Carlson System Century® Digital Central Office was cut over on the island of Guam on January 29th.

During the ceremony, the first telephone call was placed to the Guam Telephone Authority (GTA) representative in Washington, D.C. — although it was 6 p.m. in Guam, it was 3 a.m. in Washington when the call went through.

Officials on hand for the ceremony were: the Governor of Guam Paul M. Calvo; GTA General Manager John T. San Agustin, and the GTA Chairman of the Board Jesse L. Perez.

Air Combat Training Contract Awarded to Electronics Division

Electronics has been selected by the U.S. Air Force to build the first Advanced Air Combat Maneuvering Instrumentation System for the Utah Test and Training Range (UTTR) at Hill AFB. Electronics was selected for the $9 million contract following a year-long competition.

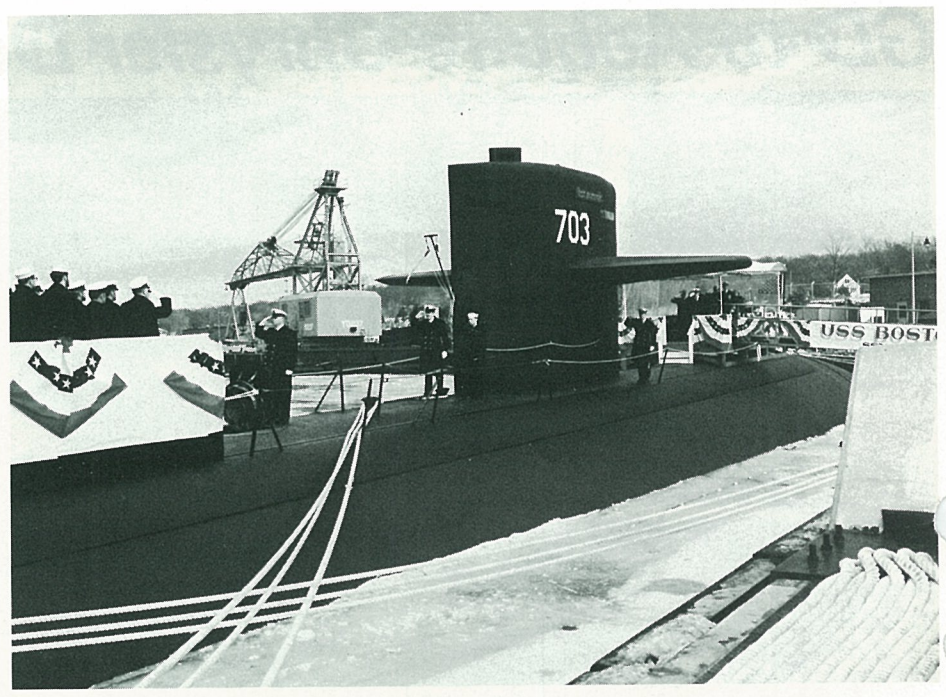
The UTTR currently provides position tracking and testing of cruise missiles and aircraft using the General Dynamics High Accuracy Multiple Object Tracking System (HAMOTS). The new system, called the HAMOTS Upgrade System (HUS), will be a new stand-alone system designed to upgrade the UTTR with advanced air combat training capability for the F-16 fighter aircraft assigned to Hill.

HUS will include numerous electronic tracking stations placed over a 100-mile diameter range area to collect position tracking and weapons data from up to 40 aircraft participating in air combat training exercises. Participating aircraft will carry an airborne instrumentation system pod contained in the shell of a Sidewinder missile.

This improved airborne pod can be carried on all current U.S. fighter aircraft and is compatible for use on other air combat training ranges now in use by the Air Force and the Navy. Data from the pod is relayed to and processed through a sophisticated computer network and then transmitted to Hill. There it is displayed in real time on large, five-foot square color screens as selectable three-dimensional views of the air combat maneuvering, including cockpit views and simulated missile flyouts. The data is simultaneously recorded by the computer for later playback and debriefing of the pilots undergoing the training.

In comparison with other air combat maneuvering instrumentation systems currently in use by the Air Force and Navy, HUS will provide training for twice as many aircraft over approximately 12 times the volume of airspace. This significant increase in capability is necessary to simulate and train more realistically in the air combat environment of the 1980's.

Electronics has designed and installed instrumented test and training ranges for the Air Force, Army and Navy at seven locations in the United States, including: Fort Hunter Liggett, Fort Irwin and Point Mugu, Calif.; Yuma, Ariz.; Fort Bliss. Tex.; Nellis AFB, Nev. and Hill AFB.



Joins Fleet. *The USS* Boston *(SSN 703) is commissioned at the Submarine Base in Groton, Conn., on January 30th. Former Secretary of the Navy Edward Hidalgo, the ceremony's principal speaker, spoke highly of the* Boston's *structural integrity and the dedication of its builders and crew. She is Electric Boat's 11th 688-class, fast-attack submarine and the seventh submarine that the shipyard delivered to the Navy last year.*

EB Receives Order for 688-Class Submarine, Options for 3 More

The U.S. Navy announced on February 11th that it has awarded a $231.5 million contract to Electric Boat for one 688-class, fast-attack submarine, with options to purchase up to three additional ships of this class.

"General Dynamics is very pleased to receive this new contract which is the first we have been awarded for a SSN 688 submarine in three years," said David S. Lewis, Chairman and Chief Executive Officer. "Electric Boat now has received contracts for 21 submarines of this class, 11 of which have been delivered, including six in the year 1981. We are hopeful that we will receive awards for additional 688s through the exercise of the options.

"At the same time that we executed the new contract, we agreed to release the Government from liability under the so-called 'insurance claims' covering material and workmanship problems on certain submarines built under contracts awarded in 1971 and 1973, covering a total of 18 ships," Lewis said. "In addition, the parties agreed to release each other from liability for claims related to events occurring prior to 15 January 1982 on all 688 contracts.

"With no revenue from the insurance claims, General Dynamics anticipates that it will incur a pretax loss of $45 million on the two contracts," Lewis said, "and in order to clean the slate on those contracts, the $45 million loss will be charged against earnings in 1981.

"With respect to the later contracts for three ships which are not affected by this settlement, the company expects those to be profitable," Lewis said.

FLAIR Provides New Savings For Inspections at Foundries

Quality Assurance's procurement department at Fort Worth is developing a new cost sharing inspection program which is planned to be used at selected foundry suppliers beginning in April.

The program, called FLAIR (Foundry Liaison and Inspection Resources) provides for a full-time inspector at a foundry supplier with the cost shared by Fort Worth and other participating aerospace contractors. Pomona Division, Boeing Aerospace, McDonnell-Douglas and Lockheed-Georgia are joining Fort Worth in the inspection program.

The program will allow full-time supplier surveillance with earlier corrective action, if necessary, and closer liaison betwen the supplier and contractor, said Mark Frazier, Manager of Procurement Quality Assurance.

Cost sharing allows each participating contractor the benefit of total on-site surveillance at a fraction of the cost. It also provides savings in travel and processing costs normally associated with itinerant source inspection programs and will further save money through a reduction in the number of supplier surveys and audits required under normal source surveillance programs.

Although the FLAIR program is initially designed for supplier furnished castings, it has the potential of being applied to a wide variety of supplier products. If successful, the program will be expanded to fill other source surveillance roles, Frazier said.

Army Awards Viper Contract

The U.S. Army Missile Command (MICOM) has awarded Pomona an $89,347,500 contract for the production of 60,000 Viper antitank weapons and associated equipment and training devices.

Viper is a short-range, shoulder-fired weapon for soldiers' immediate defense against attack by armored vehicles.

Viper production will take place at Pomona's two plants in the Camden, Ark., area — the Airport Industrial Park and the Highland Industrial Park. Deliveries are scheduled to begin in March 1983, and extend through February 1984.

Air National Guard To Begin Operating F-16 Falcons in 1983

The U.S. Air Force has announced it will begin equipping Air National Guard units with F-16 Falcons in Fiscal 1983.

The first unit scheduled to receive F-16s will be the 169th Tactical Fighter Group of the South Carolina Air National Guard.

"This is the latest example of continuing Air Force efforts to include the Air Guard as a partner in the total force," said Maj. Gen. John B. Conaway, Director of the Air National Guard.

The South Carolina unit, which is based at McEntire ANG Base, will receive 24 Falcons beginning in March of 1983.

System Century DBX Cut Over on Military AUTOVON

A Stromberg-Carlson System Century® Digital Branch Exchange with AUTOVON switching capability was cut over at the Naval Communications Station in San Diego, Calif., on January 15th.

AUTOVON (AUTOmatic VOice Network) is a worldwide telecommunications system of the U.S. Department of Defense; the new exchange provides AUTOVON service via the station to the Pacific Fleet.

The switch was the first of four System Century AUTOVON switches that will be delivered to the U.S. Navy under a program that includes Digital Branch Exchanges for bases in Honolulu, Hawaii, and Naples, Italy, and the U.S. Marine Corps Headquarters in Arlington, Va.

"The initial cutover is the culmination of a year-long effort by the Government Systems Center's engineering staff to design and incorporate the AUTOVON feature into our switches," said Howard M. Magrab, Stromberg-Carlson's Program Manager.

"This switch and the others to follow will open the door for Stromberg-Carlson to obtain contracts for even more military switching businesses," he said.

Albuquerque To Be Launched March 13 at EB

Electric Boat will launch the *Albuquerque* (SSN 706) during ceremonies on March 13th at Groton, Conn.

Mrs. Pete V. Domenici, wife of New Mexico's senior Senator, will sponsor the ship, Electric Boat's 14th 688-class fast-attack submarine. Her husband, Chairman of the Senate Budget Committee, will deliver the principal address.

In addition to his post on the Budget Committee, Senator Domenici, a Republican and Senate member for nearly 10 years, serves on the Energy and Natural Resources and Environment and Public Works Committees and the Special Committee on Aging.

Albuquerque is the second U.S. naval vessel to bear the name. The first, a 304-foot patrol frigate, saw service in World War II and the Korean conflict.

The *Albuquerque* is the first of three submarines of her class scheduled for launching at Electric Boat this year.

Stromberg-Carlson Moves Functions To Lake Mary Plant

Stromberg-Carlson has transferred its Sales/Installation and Customer Service functions to the Public Switching Center at Lake Mary, Fla.

"The transfer is intended to better define product line responsibilities and achieve both customer responsiveness and economy of operation," said James M. Bridges, President of Stromberg-Carlson.

A number of management changes were involved in the functional realignment:

Donald L. Hoffman, Vice-President of Telephone Company Sales/Installation, now reports to Kenneth S. Hoyt, Vice President and General Manager of the Public Switching Center.

Robert H. Leslie was appointed Director of Customer Liaison, with responsibility for liaison with independent telephone companies.

Robert V. Wood, Director of Customer Service, was given responsibility for the Field Service organization.

H. Thomas Hayes was appointed Regional Manager-West Coast, responsible for all West Coast sales and installation activity.

In addition, Stromberg-Carlson's Hybrid Microelectronics operation has been relocated from Rochester, N.Y., to Lake Mary, where production began in January.

1st Trident Missile Launched from Ohio

The Electric Boat-designed-and-built USS *Ohio* (SSBN 726) passed another major milestone January 17th when she successfully launched her first Trident missile while submerged 50 miles off the Florida coast.

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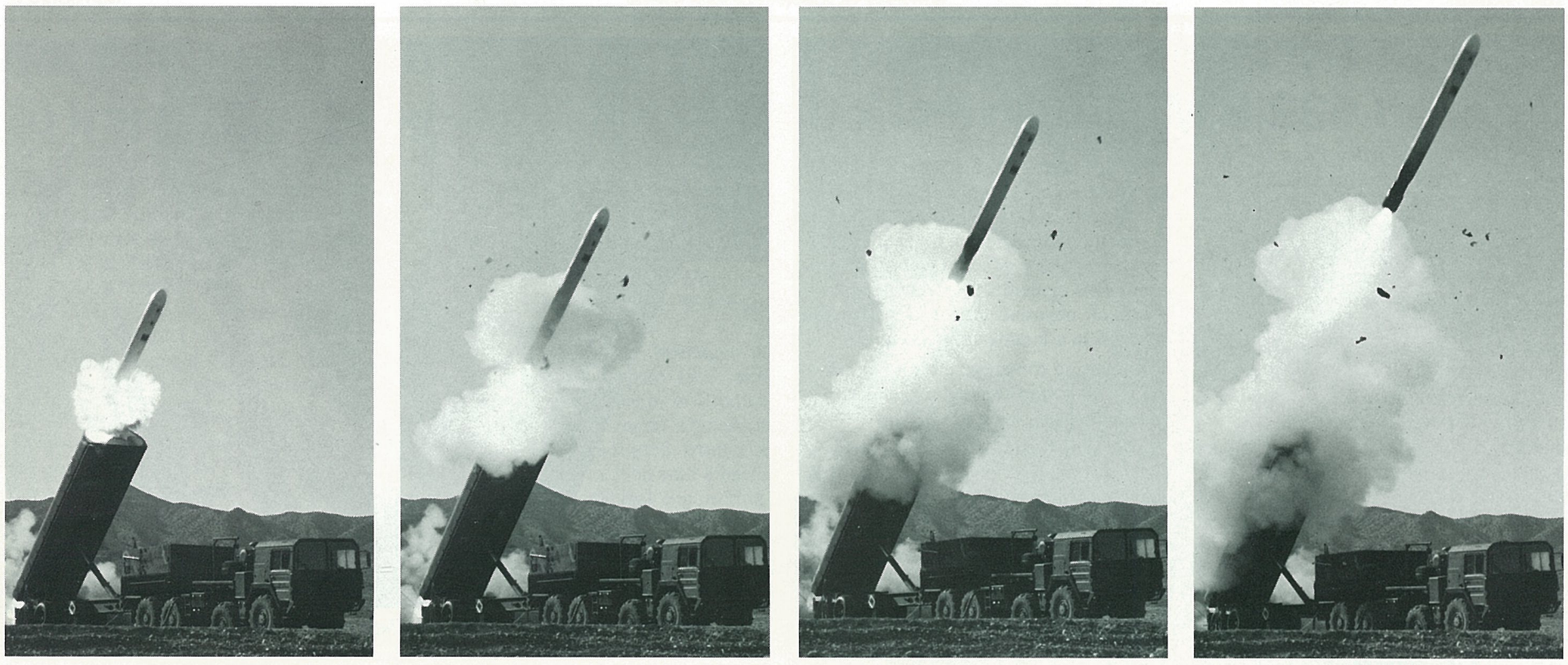


The U.S. Air Force/Convair ground-launched cruise missile is fired from an operational launcher on February 25th.

GD World

Vol. 12 No. 3 3 March 1982

Aerospace Units Lead Earnings In 4th Quarter

General Dynamics announced on February 25th that its earnings for the fourth quarter of 1981 were $32.6 million, or 60 cents per share, compared to $52.6 million, or 96 cents per share, for the fourth quarter of 1980.

Sales in the 1981 quarter were $1.32 billion, compared to $1.26 billion reported in the same period a year earlier.

"The excellent earnings posted by our aerospace group in the fourth quarter of 1981 were offset in part by write-offs taken by the marine group and inventory adjustments made at some of our commercial operations. These actions clear the way for renewed growth and improved profitability over the long term," said David S. Lewis, Chairman and Chief Executive Officer.

Lewis said when Electric Boat was awarded a $231 million U.S. Navy contract in February for one SSN 688-class attack submarine, it was agreed that the company would release the Government from liability under insurance claims

Continued on Page 2

Division Named General Dynamics Land Systems

General Dynamics completed the purchase of the Chrysler Corporation's combat tank manufacturing subsidiary, Chrysler Defense, Inc., on March 16th at a price of $336.1 million. This price was $12.4 million less than the price indicated in the original purchase agreement announced on February 19th, reflecting certain agreed-upon adjustments arising since that date. The newly acquired operation has become General Dynamics Land Systems Division.

"We are pleased that the purchase has been finalized and that we will have responsibility for the very important U.S. Army tank development and production programs," said David S. Lewis, GD Chairman and Chief Executive Officer.

The organization has been producing tanks and military vehicles since 1941 and is the largest developer and manufacturer of combat tanks in the Free World.

Land Systems Division employs more than 7,000 people in three states and manufactures the advanced M1 Abrams tank for the U.S. Army and the M60 main battle tank for several allied nations. *(See* GD World, *February 1982.)*

Fog, Drizzle and Tide Reverse The Ceremony for Albuquerque

There's truth to the old adage, "Time and tide wait for no man." Just ask the 6,800 spectators and guests who witnessed the launching of the fast-attack submarine *Albuquerque* (SSN 706) March 13th at Electric Boat.

The tide certainly wouldn't wait for the principal figures in the launching, whose plane was diverted from the Groton-New London Airport to the more distant T. A. Green Airport at Warwick, R. I., because of fog and drizzle that shrouded the area.

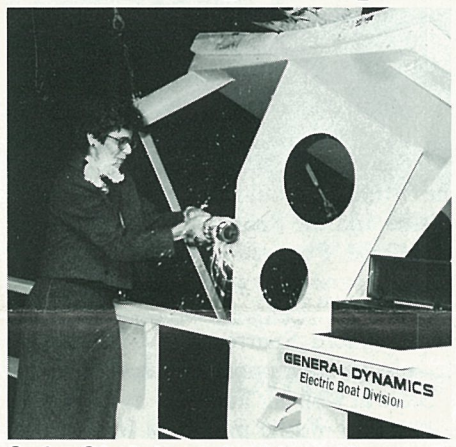
And when the principals arrived at the ceremony 45 minutes late, the ship had to slide within minutes or the tide would not be favorable.

(Submarines are launched at slack tide just after high tide during a "tide window" that usually lasts for only a few minutes.)

Seeing clearly what had to be done, David S. Lewis, General Dynamics' Chairman and Chief Executive Officer, turned the ceremony around to launch the ship first, as he said, "before the mud comes up," rather than at the end.

Unruffled, Mrs. Nancy L. Domenici, the sponsor, stepped smartly to the christening platform. Champagne bottle poised, she said: "I christen thee *Albuquerque*. May God bless her and all who sail in her." Seconds later, she cracked the bottle on the striking bar at the ship's bow.

Horn blaring above the strains of



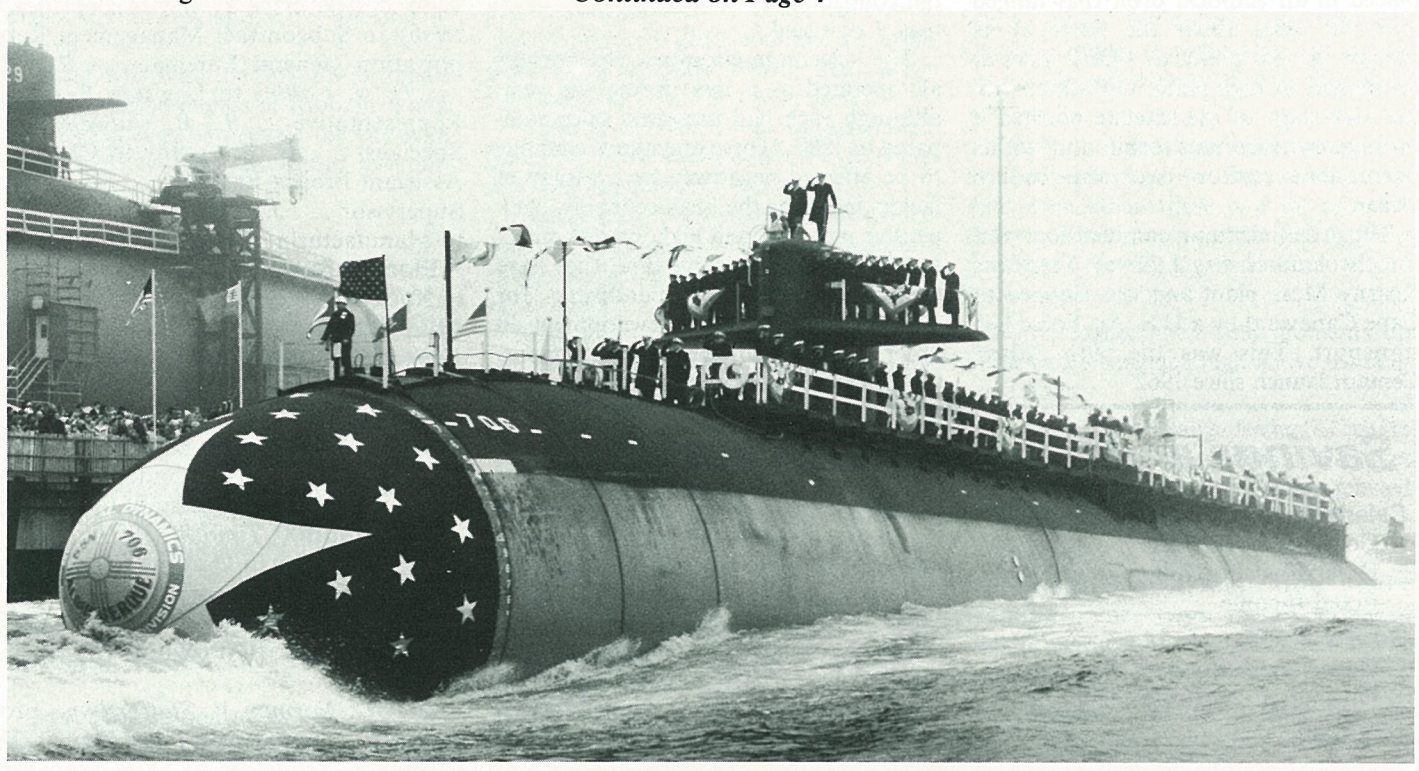
Sub Christened. *Mrs. Nancy L. Domenici smashes a bottle of champagne against the striking bar of the* Albuquerque *on March 13th.*

"Anchors Aweigh" from the U.S. Coast Guard Band, the 360-foot vessel slid quickly into the mist covering the Thames River.

Then, with a collective sigh of relief, the crowd settled down for the beginning of the program.

Mrs. Domenici's husband, New Mexico's Senior Senator Pete V. Domenici, the principal speaker, called *Albuquerque* "a statement of America's commitment to freedom." Sen. Domenici, Chairman of the Senate Budget Committee, termed nuclear subs "part of a comprehensive plan to modernize and maintain

Continued on Page 4



Albuquerque *(SSN 706) slides into the Thames River*

Tomahawk Test Uses Operational Control System

A U. S. Air Force/Convair Tomahawk cruise missile was successfully launched on a test flight on February 25th. The missile was launched from its transporter for the first time using the control unit that will support the ground-launched cruise missile (GLCM) operational system.

After launch from its transporter-erector-launcher (TEL) while under the command and control of its launch-control-center (LCC), the missile transitioned from boost to cruise flight and flew a fully-guided mission over the Utah Test and Training Range. During its flight, the GLCM used its terrain-following capabilities over a pre-programmed course while making two passes over a simulated ground target.

The LCC, which contains the communications and weapons control equipment necessary to target and launch the missile, received its mission flight data via the Department of Defense's theater mission planning system which has been used in eight previous tests of Tomahawk cruise missiles launched from submarines.

When the flight was completed, the missile's parachute recovery system was activated and the missile was recovered for refurbishment and reuse in the test program.

The flight was the first of two contractor tests using the TEL and LCC delivered to the Air Force earlier in February by Convair. An Air Force test and evaluation team, using the same units, will conduct eight additional flight tests and a series of ground tests prior to initial deployment of the GLCM weapon system next year.

General Dynamics Earnings Totalled $32.6 Million in Period

Continued from Page 1

covering material and workmanship problems on certain 688-class submarines previously built by Electric Boat. With no revenue being available from the insurance claims, a pretax loss of $45 million ($24.3 million after taxes) on the contracts covered by the claims was charged against earnings in the fourth quarter.

"With the new contract, we now have 10 SSN 688s under construction at the shipyard," Lewis said, "and we expect that these will be produced on a profitable basis."

In addition to the writeoff at Electric Boat, Lewis said, the company wrote off a total of $28 million ($15.1 million after taxes) in the fourth quarter to cover the cost of maintaining the operational capabilities at Quincy Shipbuilding during a period of excess capacity and for adjusting slow-moving inventories at DatagraphiX and American Telecommunications.

Sales Reach $5.06 Billion

Earnings for the full year of 1981 were $124.1 million, or $2.25 per share, a decline of 36 percent from 1980's earnings of $195 million, or $3.58 per share. Sales during 1981 reached an all-time high of $5.06 billion, which compares to sales of $4.65 billion in 1980. The sale of certain tax benefits resulted in additional net earnings of $5.2 million, or 10 cents per share, for the fourth quarter and the year.

Funded backlog at the end of 1981 was $10.5 billion, with total funded and unfunded backlog at $11.1 billion. Comparable backlog amounts at the end of 1980 were $10.3 billion and $11.1 billion.

Turning to recent events, Lewis said, "We have been very encouraged by important and positive developments that have occurred in 1982 which we believe will contribute strongly to the growth of the company in the years ahead."

Lewis said these developments include:

• The Air Force's new tactical fighter requirements forecast in which the planned procurement of F-16s is increased from 1,388 to approximately 2,000. Delivery of these additional aircraft would begin in the late 1980s and extend production well into the 1990s.

• The signing of the agreement with the Government of Quebec which transfers management control of Asbestos Corporation Limited from General Dynamics to an agency of the Quebec government. This agreement, reached after four years of negotiations, is a reasonable solution to a long-term problem.

Reviewing the company operations in 1981, Lewis said that sales and earnings were led by the aerospace group.

Fort Worth had the best earnings year in its history as 276 F-16 Falcons were delivered from the assembly lines at Fort Worth and in Europe. To date, a total of 631 F-16s have been delivered to the air forces of seven countries, the United States, Belgium, Denmark, the Netherlands, Norway, Israel and Egypt. During 1982, 259 F-16s are scheduled for delivery.

The Netherlands has recently ordered 18 additional F-16s, bringing its total order to 142, and U.S. Government approvals have recently been granted for the sale of a total of 100 F-16s to Pakistan (40), South Korea (36) and Venezuela (24). In October 1981, one month ahead of schedule, the Israeli Air Force received the last of the 75 F-16s in its initial order. Negotiations are under way with Israel for a major follow-on buy, and Egypt has stated its intention to purchase 40 additional F-16s, which would bring its total to 80.

Pomona Division had a very good year as it maintained volume production of several tactical weapon systems, including the Standard surface-to-air missile, the Phalanx ship-defense gun system, the Stinger shoulder-fired antiaircraft missile and the Sparrow AIM-7F air-to-air missile. Pomona's production base is being expanded as two new systems, the Viper shoulder-fired antitank weapon and the advanced Sparrow AIM-7M air-to-air missile, enter initial production.

Sales at Convair increased as its important cruise missile programs for the Air Force and Navy passed major development milestones, clearing the way for long-term production. Earnings at the division were lower than in 1980, primarily reflecting the decline in deliveries of DC-10 fuselages to McDonnell Douglas.

Resources Results

Results at the resources subsidiaries, Material Service, Marblehead Lime and Freeman United Coal Mining, were generally lower than in 1980, reflecting the effects of the weak economy and extended strikes which resulted in a substantial loss at Freeman during the second quarter of the year and which severely impacted operations at Material Service during the third quarter. However, each of the units was profitable and as the economy improves they should again make substantial contributions to the company's earnings, Lewis said.

The telecommunications components all operated at a loss during the year, although each had increased sales compared to 1980. "These operations continue to be affected negatively by a variety of factors including the weak economy, competitive pressures and high interest rates," Lewis said. "At the same time, they have steadily maintained expenditures for product research and development in order to take advantage of growth opportunities when the economy improves."

Atlas/Centaur Boosts Fourth Intelsat to Orbit

The fourth of five Intelsat V communications satellites was launched into orbit on March 4th by a Convair Atlas/Centaur space booster combination.

The 4,250-pound payload was initially placed in an elliptical orbit that ranged from 90 miles above the Earth at its perigee, or low point, to 19,412 miles at its apogee, or high point. On March 7th, the kick-stage of the satellite boosted it into geosynchronous orbit and to its permanent station over the Indian Ocean.

The Atlas/Centaur combination used for the launch was built at Convair's Kearny Mesa plant and was shipped to Cape Canaveral by a U.S. Air Force C-5 transport. This was the 59th Atlas/Centaur launch since 1962.

Savings and Stock Investment Values

	Jan. 1980	Jan. 1981	Jan. 1982
Salaried			
Government Bonds	$2.3043	$2.5154	$2.8106
Diversified Portfolio	1.7329	2.0544	2.0370
Fixed Income	1.0559	1.1653	1.2953
Hourly			
Government Bonds	2.3036	2.5127	2.8075
Diversified Portfolio	1.7688	2.0992	2.0801
GD Stock	$40.1900*	$34.3750*	$26.0000

* Reflects 2 for 1 stock split of November 1980.

Third Generation. *Ann Tyndale, an illustrator in Convair's Technical Publications group, discusses changes to be made in part of the artwork used in the C-131 flight manual with her supervisor, Joe Hoover. Hoover was also the supervisor when Ann's father rendered the original drawings in the 1950s.*

Third Generation Convair Employee Updates Work Done by Her Father

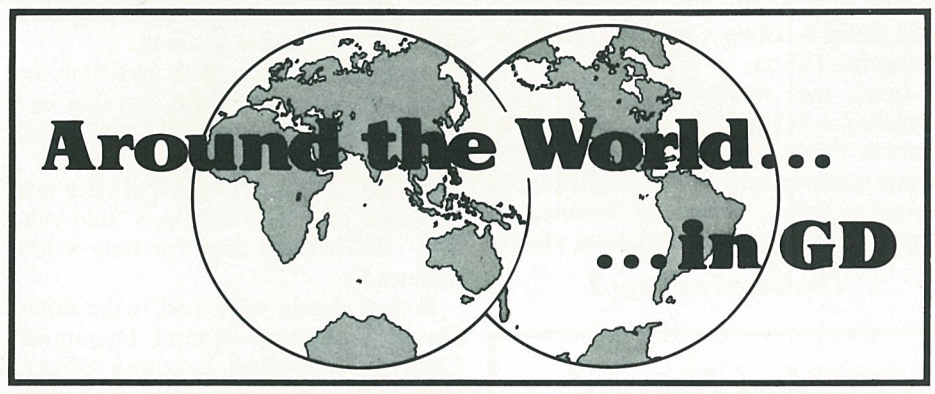
The original artist's name on the drawing Ann Tyndale was revising was "Tyndale" but the artwork wasn't hers. The drawing, part of a C-131B publication, had been rendered by her father in the 1950s, and now Ann, 26, was updating it and repairing some of the overlays.

Ann's father, Edward J. Tyndale Jr., had worked as an illustrator in Convair's Technical Publications group in the 1950's and 60's, before retiring in 1965. Her mother, also a Convair illustrator, met Edward on the job, and after several years decided to change to the role of housewife and mother.

Nor are they the family's only link with Convair. Ann's grandfather, Edward Sr., was an engineering writer for the division between 1953 and his retirement in 1963.

The original C-131B aircraft, a modified Convair 340, was first delivered to the U.S. Air Force in the mid-1950s, and 11 different versions of the aircraft served the Air Force and Navy as airborne classrooms for navigator training, as medical evacuation planes and as transports.

Although all of the original 52 C-131s have been retired from active Air Force service, 33 are still being used by the Air National Guard as transports. The Coast Guard also uses them as medium-range search and rescue aircraft, and four were converted from piston engines to turboprops and are flown by the Naval Reserve.



CHQ: *Dennis E. Fiehler* was promoted to Corporate Cash Planning Manager.

Fort Worth: *J. M. Mullins* was promoted to Production Management Specialist . . . *J. C. McLaughlin, T. R. Newell, R. P. Novick, C. C. Simpson, J. R. Bingham, R. M. Hoyt, J. A. Harbolt, R. J. Weiser, G. L. Wolcott, M. R. Erter* and *L. G. LaForge* to Field Service Engineer . . . *G. Noll 3d* to Planning Specialist . . . *C. A. Palermo Jr.* and *A. V. Warner Jr.* to Project Engineer . . . *C. B. Powell Jr.* and *J. A. Carlisle* to Program Specialist . . . *R. Richardson* to Project Coordinator . . . *R. E. Schroeder* to Principal Field Service Engineer . . . *C. W. Smith, G. Ploetz, L. Warnick Jr.* and *C. B. Cox* to Engineering Chief . . . *I. M. Swaim* and *A. E. Holton Jr.* to Logistics Supervisor . . . *G. H. Unsell 3d* to Manufacturing Control Supervisor . . . *R. J. Ury* to Material Planning Supervisor . . . *W. H. Wayman* to Logistics Control Analyst, Senior . . . *R. H. Battersby* to Subcontract Management Representative . . . *R. L. Brannan* to Transportation General Foreman . . . *R. Coffman* to Production Control Foreman . . . *D. N. Collins* to Logistics Engineer . . . *K. W. Crisco* to Logistics Supply Representative . . . *L. R. Culwell* to Manufacturing Technology Engineering Specialist . . . *G. E. Cumby* to Chief of Transportation . . . *R. E. French Jr.* to Assistant Project Engineer . . . *J. W. Gregg* to Engineering Administrative Group Supervisor . . . *J. L. Grosklos* to Senior Contract Administrator . . . *A. A. White* to Manufacturing Control Supervisor.

Electric Boat: *Charles Hardy, Craig Porter* and *Mark Stanley* were promoted to Nuclear Test Supervisor . . . *Stephan Bush* to Chief Test Engineer . . . *Kenneth Cote, Stephen VanHorn* and *Philip White* to Test Operations Engineer . . . *Kenneth Dutton* to Supervisor, Quality Engineering . . . *Earl Forbes* to Ship Superintendent, Senior . . . *John Tamburri* and *John Morey* to Test Operations Engineer, Senior . . . *Ronald Whited* to Engineering Test Coordinator . . . *Robert Ames* to Engineering Supervisor . . . *Michael Schefers* to Chief of Test Records . . . At Quonset Point facility — *John Pfieffer* and *Dean Wilcox* were promoted to Special Assistant to the General Manager.

DatagraphiX: *Timothy P. Hathaway* was promoted to Project Engineer . . . *Larry D. Wadley* to Drafting Supervisor . . . *Sue V. Gregory* to Financial Services Administrator . . . *Gerald A. Owings* to Supervisor, Material Control.

Convair: *Ronald N. Hubbard* was promoted to Engineering Director . . . *Bradley Sowers* to Program Manager . . . *Douglas W. Knight* to Operations Supervisor.

GDCC: *Norman V. Stafford* was promoted to Regional Manager . . . *Karen J. Smith* to Supervisor I . . . *Francis Thuraisamy* to Operations Supervisor . . . *George E. Schneider* to Sales Manager . . . *C. Douglas Hoose* to Engineering Manager . . . *Peter Tuckerman* to Director, Product Management.

Four Appointed by Electronics To Important Program Positions

Four personnel appointments have been announced by Electronics Division.

Walter P. Robertson was named Program Director-F-16 Avionics Intermediate Shop; Peter H. Williamson was appointed Director of Navy Automatic Test Systems; Carl D. Nelson was named Director of Product Support, and Calvin Burns was appointed Program Manager for the HAMOTS Upgrade System.

Robertson will be responsible for the automatic test equipment that supports the F-16 Falcon in use by the U.S. Air Force and seven allied countries.

He joined the company in 1966 and has been Director of Product Support since 1980. He replaces Herbert E. Jordan, who has retired. Robertson earned his bachelor's degree in 1964 from Texas Christian University.

Williamson will be responsible for all U. S. Navy test equipment programs including the Consolidated Support System study and the Hybrid Automatic Test System for the S-3A aircraft.

He has been with the company since 1966 and joined Electronics in 1970. Prior to his new appointment, he was Program Director for Automatic Test Systems. Williamson holds a master's degree in physics from the University of Wisconsin and a bachelor's degree from Worcester (Mass.) Polytechnic Institute.

Nelson, who has been Manager of Specialty Engineering since 1979, will replace Robertson as Director of Product Support. He joined General Dynamics in 1966. He was graduated from the University of Illinois in 1958 with a bachelor's degree in mechanical engineering. In 1963 he received a Master of Business Administration degree from the University of Chicago.

Burns will head the important High Accuracy Multiple Object Tracking System (HAMOTS) Upgrade System program. HAMOTS is a range measurement system currently in use at the Utah Test and Training Range. Burns joined Convair in 1953. He received his bachelor's degree in physics from San Diego State in 1959.

Gold Knight. *Dr. Leonard F. Buchanan, Convair General Manager, accepts the Gold Knight of Management Award from National Management Association (NMA) President Jean Hatfield. The presentation was made at the February meeting of the San Diego NMA Council. The award is the highest honor given by an NMA Council.*

Team Operation. *Fort Worth's Sam Castillo (top) lifts an F-16 wing into place, directed from the floor by his partner, Larry Mays.*

2,000-Line Digital Mobile Office Cut Over in Riobamba, Ecuador

Stromberg-Carlson recently placed a 2,000-line System Century® Digital Mobile Office (DMO) system and two Stromberg-Carlson Operator Position System (SCOPS) terminals into service in Riobamba, Ecuador. The system cutover was celebrated at two ceremonies attended by the Vice President of Ecuador, Leon Roldos, and other dignitaries.

At the first cutover ceremony, held at the office of the Ecuadorian Institute of Telecommunications (IETEL), Vice President Roldos initiated the system with a telephone call, and Ecuadorian Minister of Public Works Vicente Estrada congratulated and thanked Stromberg-Carlson on national radio. Also attending were Edilberto Bonilla, Mayor of Riobamba, and Nelson Ruiz, the General Manager of IETEL.

The second ceremony was held at the Riobamba City Hall, where Stromberg-Carlson President James M. Bridges and other dignitaries spoke to about 600 people.

The DMO with the SCOPS terminals serves 80,000 residents of Riobamba and has the capacity to provide the city with 6,000 lines to meet its future telecommunications needs.

Suggestors Top Convair's '81 Goal

Convair's Cost Reduction Program saved the division more than $1 million in first year savings during 1981 — and 920 Convair employees shared awards totaling $101,410 for their ideas.

Convair's Cost Reduction/Value Control Program goal for 1981 was $1,005,400 in savings, but savings from the suggestions submitted surpassed the goal by 6.8 percent and amounted to $1,074,100. The Convair adoption rate of suggestions was 27.6 percent, better than the national average, according to J. M. Ibarra Jr., Administrator of the program.

Ibarra attributed Convair's results to both the quality of the suggestions submitted and to supervisory involvement in the program. He said that by the end of 1981, 3,165 suggestions had been submitted, and 3,269 suggestions had been processed.

In the fourth quarter of 1981, Convair saved $422,100 from employee suggestions — compared with a goal of $240,000 for the period.

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Contributing Editors, Convair Edition
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A Man Seen Flapping His Arms Isn't Flipping--He's Signaling

From his monorail cab 40 feet above the F-16 assembly line, Overhead Crane Operator Sam Castillo has a falcon's-eye view of the entire production area in the Fort Worth plant.

Most of Castillo's attention, however, is limited to the north end of the mile-long plant, the final assembly area for the F-16 Falcon. Several F-111s are also being restored there.

"We've got the area between Columns 104 and 160," said Castillo, pointing to the numbered "locator" columns standing every 50 feet for the length of the building. "That's a big area for us to cover, so I don't have a lot of time to be watching what's happening down south."

Larry Mays, the other half of the 'us,' is a crane rigger who for the past three years has worked on the factory floor, directing Castillo's movements with quick hand and arm signals. Mays, a division employee for almost 17 years, has been a rigger for seven years and was an overhead crane operator before that, using the same cab Castillo now occupies.

"I moved the last F-111 we assembled (Dec. 17, 1976) and the first YF-16 (Feb. 2, 1974)," said Mays.

"There have been a lot of F-16s since then . . . and now, with the restoration program, we're moving F-111 components again."

Mays and Castillo, who has worked in the Fort Worth division 31 years, comprise one of five teams which work on the monorail, a system that covers 2.7 million square feet and moves components along the line from south to north as a Falcon is assembled.

The Mays-Castillo team covers one of the plant's largest areas with their 10,000-pound capacity overhead crane. They are responsible for moving some of the largest parts of the aircraft, including the 45-foot-long mated fuselage when it is removed from its jigs. They also move wings from a storage area and lift them into place alongside the fuselage for attachment.

Working on the concrete floor and wearing the distinctive, 'riggers-only,' shiny aluminum helmet, Mays gets his directions from a walkie-talkie attached to his belt.

"If the call comes from (Column) 132, I know that means we've got an ammunition drum to move," Mays said. "Or if it's (Column) 140, then I know we've got wings to move."

Mays then signals Castillo where to move the cab. (The signal to go to the ammunition drum area is to hold both hands in the shape of a barrel. For the wings, Mays flaps his hands and arms.)

After Mays has carefully hooked moving bars and straps to the component, he signals Castillo to lift the item and deliver it where it's needed.

"When you work together the way we do, you get to know each other real well," Mays said. "We've got our standard (hand) signals — and we've got a few others that we've come up with that work well for us.

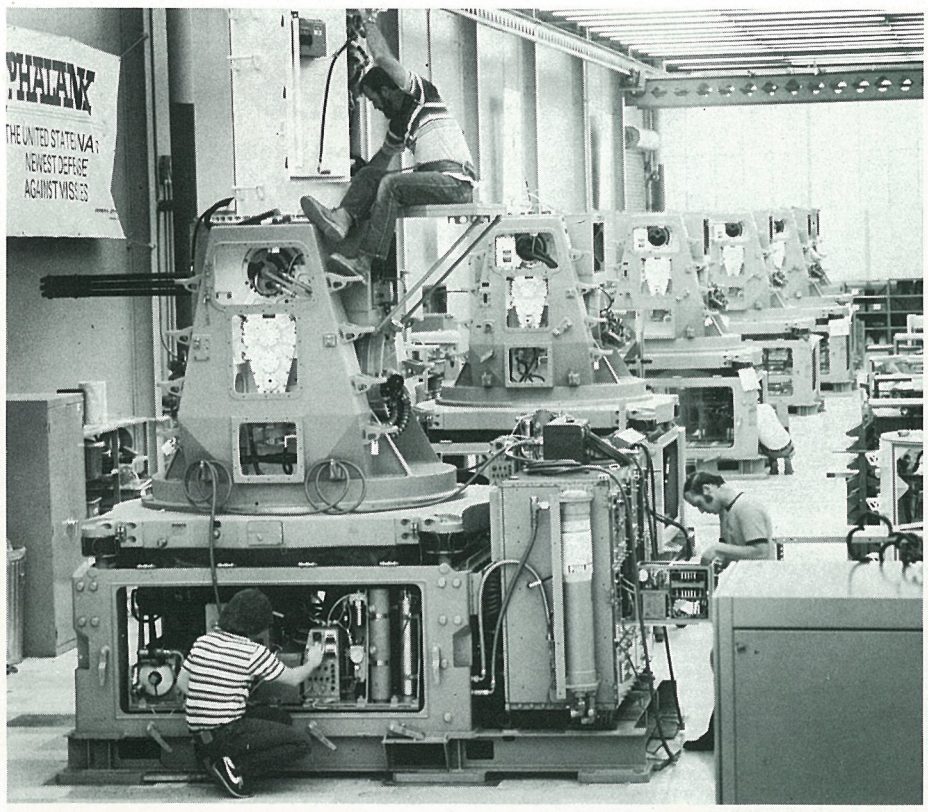
"Even though there may be quite a few people around me, Sam sees just me. And even when there is a lot of other activity, I know he's watching. That's the good part of working with someone you know and trust."

Both recalled their first moments up in the cab, suspended high above the concrete floor.

"At first, it's a strange feeling," Castillo said as Mays nodded agreement. "It takes quite a while before you really feel relaxed — maybe as much as six months."

There is not much formal schooling for overhead operators. Most of the training comes from the experienced operators; most of the riggers, like Mays, have been overhead operators.

"If a person wants to learn this, he can," Mays said, "Once in a while, we've had people who get too scared, but not very often."



Phalanx Assembly Line. *Pomona technicians prepare a Phalanx close-in weapon system for delivery to the U.S. Navy. Phalanx uses advanced technology to pinpoint targets, such as incoming antiship missiles, and automatically directs 20-mm. projectiles to destroy the targets.*

100th Phalanx System Delivered During Ceremony at Pomona

The one hundredth Phalanx close-in weapon system was accepted by the U.S. Navy during a ceremony at Pomona last month. It will be installed aboard the destroyer USS *Chandler*.

Speakers at the ceremony, which was attended by several hundred Phalanx program employees, U.S. Navy representatives and distinguished guests, included Capt. T. R. Mathis, Commanding Officer of the Naval Ship Weapons Systems Engineering Station at Port Hueneme, Calif.; Cmdr. Gil F. Monell, Phalanx Program Manager-Naval Sea Systems Command, Norman C. Stranberg, Phalanx Program Vice President and Program Director, and Ralph E. Hawes, Pomona Vice President and General Manager.

Guests attending included Congressman David Dreier, Republican of California; Loyal Nixon, representative of California Assemblyman Jim Cramer; and Pomona Mayor Adrian T. Wright.

The first Phalanx production unit was completed in 1979 under terms of an initial production contract for 37 units. Since then, Pomona has received three additional production contracts for 196 units, spares and ancillary equipment, plus software.

GE Now Distributor For System Century

General Electric has become a distributor for Stromberg-Carlson's System Century® Digital Branch Exchange (DBX) and Digital Trunk Expander (DTX).

By undertaking the sales, installation and service of Stromberg's DBX and DTX equipment, GE now offers a complete telecommunications product line. The company entered the telephone interconnect business in 1979 and announced its expansion into the private automatic branch exchange market in April of last year.

Electric Boat Christens Albuquerque

Continued from Page 1

our armed forces at the required level of readiness."

Echoing Domenici, George A. Sawyer, Assistant Secretary of the Navy for Shipbuilding and Logistics, said *Albuquerque* and other vessels in the class are "very needed, and we will need more." *Albuquerque* is Electric Boat's 14th 688-class fast-attack submarine.

Sawyer said the Reagan administration wants 100 fast-attack submarines "to balance the force of our adversary."

Speaking at his first public ceremony since becoming Electric Boat General Manager last November, Fritz G. Tovar welcomed guests, including Albuquerque Mayor Harry E. Kinney.

Albuquerque and her sister ships are designed to hunt down and destroy enemy surface ships. There are currently 18 of the vessels in service, 11 of them built by Electric Boat.

RAM Launch Systems Complete Performance Tests in West Germany

Two engineering development models of the RAM guided missile launching system have successfully completed proof of performance testing in West Germany. The launching systems were integrated at Pomona Division last year and were shipped to West Germany for the tests.

The RAM missile system is being developed at Pomona under the joint sponsorship of the U.S. Navy and the governments of the Federal Republic of Germany and Denmark. The RAM is a high firepower, lightweight, fast-reaction missile system designed to provide a wide range of ships with a defense against antiship missiles. Its joint development is an important step in the standardization and interoperability of NATO defensive systems.

The recent tests, at a land-based site in Bremen/Vegesak, proved that components of the launching system produced by Pomona and in West Germany can be integrated successfully and that the system functions as expected.

RAM utilizes subsystems from two Pomona products, Phalanx and Stinger. The mount and elevation/train drive assemblies come from Phalanx, the U.S. Navy's radar-directed shipboard close-in gun defense system. The infrared seeker used for the RAM missile's guidance is also used in Stinger, the U.S. Army's manportable air defense missile system.

The launcher guide, carriage structure and launcher servo cabinet assembly are fabricated in West Germany. German firms participating in the full-scale engineering development include AEG-Telefunken, Bodenseewerk, Diehl, Estel Rothe Erde and VFW.

Two other engineering development models of the launching system will be used to support missile firing tests in the U.S. One will be shipped to White Sands Missile Range, N. Mex. for firing tests in late April or early May. The other will undergo environmental qualification tests in late 1982, to be followed by at-sea firings in early 1983.

Successful completion of the tests of the four launching system models is expected to result in the award of a production contract in the spring of 1984.

The Navy awarded Pomona an $85 million contract in June 1979 for full-scale engineering development, including fabrication of prototype command and launch systems, engineering model missiles and limited production rounds for flight tests and evaluation.

Business Phones Introduced By Stromberg-Carlson

Stromberg-Carlson has introduced a unique line of telephones designed specifically for modern business communications.

Called the ASF 3500, the new line allows the packaging of a broad range of user convenience features in a single, compact instrument. While maintaining a uniformity of style, users can select instruments and features to meet specific requirements.

"The ASF 3500 is an innovative approach to the dramatically changing requirements in business communications," said Walter O'Connell, Director of Marketing for Stromberg-Carlson's Telephone Systems Center.

"Business telephones can be connected to private branch exchanges or central offices offering a number of specialized features such as custom-calling, or they can be connected to key systems providing each phone with direct access to multiple lines," he said.

GD Flashback

Quincy's SS Independence Sails On After 30 Years

Thirty years ago, the ultimate in sea-going luxury was the SS *Independence* — and she is still going strong today.

The sleek liner was built for American Export Lines in the shipyard that is now Quincy Shipbuilding Division. At the time, she was the last word in size, speed and plush accommodations.

The $25 million SS *Independence* was the first post-war merchant ship built in the United States. She was delivered on Jan. 11, 1951, and went into immediate service out of New York, calling at Gibraltar, Cannes, Genoa and Naples.

In her trans-Atlantic service, the *Independence* carried 1,003 passengers and a crew of 577. She has an overall length of 683 feet, breadth of 89 feet and a displacement of 30,900 tons. During her sea trials, the *Independence* developed 58,000 horsepower, and she became the fastest liner ever built when she recorded an average speed of more than 26 knots. This speed enabled her to make the 4,000-mile New York to Naples crossing in less than eight days, or two days faster than any other ship on that run.

William W. Hurd, of River Vale, N.J., who joined the *Independence's* crew in 1960, recalled recently that she was the most luxurious ocean liner at the time. Hurd, who left as the ship's Chief Engineer in 1965 to take a job as a Port Engineer, said that in the mid-1960s she was converted to a cruise ship, sailing the Mediterranean and the Caribbean.

As an ocean liner, Hurd said, she had First Class, Cabin Class and Tourist Class staterooms and 16 suites, each comprising a living room, two private baths, four large wardrobes and 25-foot verandas. She had several bars, night clubs, lounges, a children's playroom, a gymnasium and a 150-seat auditorium/chapel/theater.

The trans-Atlantic *Independence* had two outdoor swimming pools, an electric bath, three barber shops, a beauty salon, a newspaper, a tailor shop, a printing shop, a photography shop and a gift shop with items ranging from art objects to evening gowns. There were three hospitals and three laundries, one used exclusively for her 129,000 pieces of linen and 2,500 bedspreads.

Three dining rooms handled 750 persons at one sitting. Two galleys made up to 4,740 meals a day and a total of 38,000 meals for the Atlantic crossing. Passengers could also have their meals served in their staterooms. The ship produced all her own ice and ice cream — 2,600 pounds of ice daily and 80 quarts of ice cream an hour. She also was the first ship to produce her entire supply of fresh water directly from the sea, distilling 120,000 gallons of fresh water a day.

Her air conditioning plants extracted 10,000 gallons of water daily from the air they supplied. The ship-to-shore telephone system had a radius of 5,000 miles. Her electric plant could supply all the power needed for a city of 8,000 people.

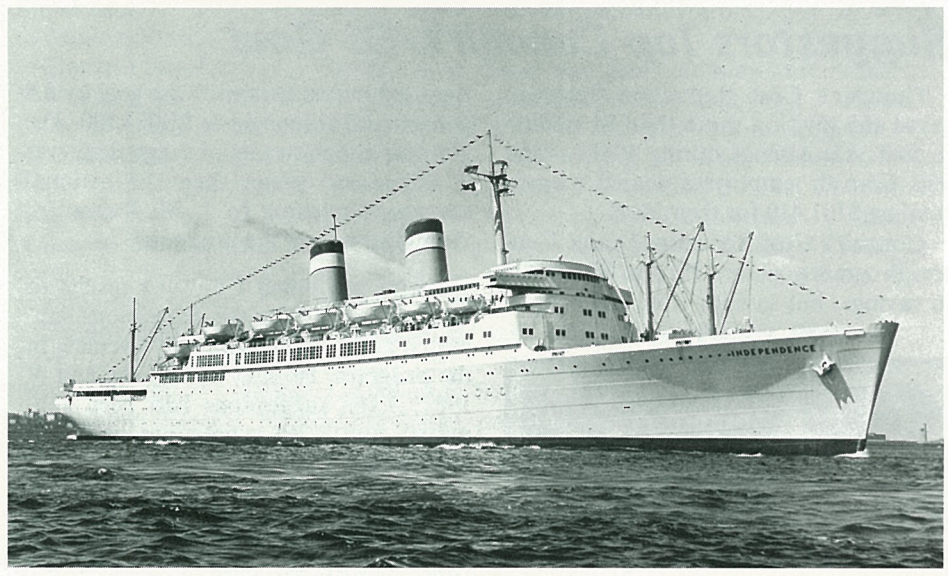
American Export Lines sold the *Independence* in 1968 to Fugazy, Inc., but she was laid up at Baltimore for six years after an unsuccessful attempt by Fugazy in promoting cut-rate cruises.

She remained, rusting and weathering, at Baltimore until 1974, when she was sold to shipping magnate C. Y. Tung and his Atlantic Far East Lines, which renamed her the SS *Oceanic Independence* and put her into cruise service around southeast Africa.

But she became inactive in January 1976, and was laid up again, this time at Hong Kong. The following November, Tung renamed her the *Sea Luck I* for use as a floating hotel in the Mideast. But the plan fell through; she never left Hong Kong, and she again was renamed *Oceanic Independence*.

Finally, in 1979, she was sold to American Global Lines. She was completely refurbished in Asia and, in June 1980, went into service for American Hawaii Cruises on seven-day luxury cruises of the Hawaiian Islands.

Once again a beautiful ship, she can be seen today — carrying 750 passengers and a crew of 320 — gracefully cruising between the islands of Oahu, Hawaii, Kauai and Maui at a leisurely speed of 17 knots.



The SS Independence

GD World

Vol. 12 No. 4 3 April 1982

F-16s' Arrival In Egypt Marked By Ceremony

A ceremony marking the arrival of the first of an initial purchase of 40 F-16s by the Egyptian Air Force was held at An Shas Air Base outside Cairo on March 27th.

During the ceremony, Maj. Gen. Lofti Shabana, Commander of the Egyptian Air Force (EAF), said, "We have dreamt of having the F-16 join our Air Forces since we read and heard about it, because of its superior capability, high maneuverability and sophisticated avionics."

Gen. Shabana said the F-16 would be the backbone of his country's defense for years to come.

There is no doubt, he said, "that the entry of the F-16s in service will have its great impact on our defense capability to deter whoever thinks of aggression . . . ."

Other Egyptian Air Force officials attending the ceremony included: Maj. Gen. Mohamed A. Hamid Helmi, EAF Chief of Staff, Brig. Gen. Alaa Barakat, Chief of Planning, and Brig. Gen. Awad Hamdi, Director of F-16/F-4 Programs.

(Subsequent to the ceremony, the Egyptian government announced that Maj. Gen. Shabana had been appointed Ambassador in the Foreign Ministry; Maj. Gen. Halmi had been appointed EAF Commander, and Brig. Gen. Barakat was appointed Chief of Operations for the EAF.)

The U.S. Air Force was represented by Maj. Gen. Ed Tixier, Chief of the Office of Military Cooperation in Cairo, and Brig. Gen. George L. Monahan, Jr., F-16 System Program Director.

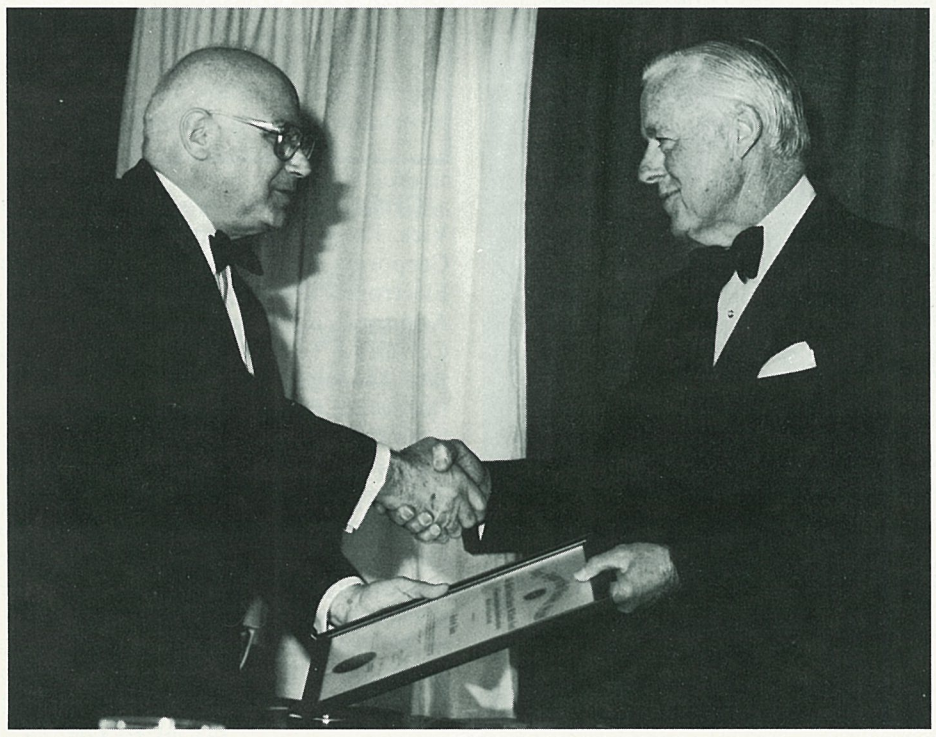
Heading a small group of General Dynamics officials was David S. Lewis, Chairman and Chief Executive Officer.

Speaking for GD and for United Technologies, builders of the F-16's engine, and for the many associated contractors and subcontractors, Lewis said, "This is a great day for us. We are most pleased to be of service to the United Arab Republic of Egypt and to the Egyptian Air Force."

Lewis noted that "this has been a record delivery of aircraft to any country . . . an example of close cooperation between our two countries, under the leadership and direction of the United States Air Force.

"This is the first program that General Dynamics has ever had the opportunity to carry out for the Egyptian Air Force," Lewis said, "and as the Egyptian Air Force starts its second half century, we hope that we will be working for and

Continued on Page 4



Lewis Honored. *Navy League President John M. Rau (left) presents David S. Lewis, GD Chairman and Chief Executive Officer, with the League's Fleet Admiral Chester W. Nimitz Award at a banquet in Washington D.C. on April 7th.*

Lewis Honored by Navy League With Fleet Admiral Nimitz Award

David S. Lewis, Chairman and Chief Executive Officer of General Dynamics, received the Fleet Admiral Chester W. Nimitz Award on April 7th during the Navy League of the United States' annual convention in Washington, D.C.

Lewis was cited for:

"His superb leadership, outstanding technical competence and creativity, thorough grasp of national defense needs, and staunch patriotism have made possible the continuing development and production of aircraft, missiles, and submarines that have contributed immensely to our nation's ability to remain strong and free."

The Nimitz Award is presented annually by the Navy League to an individual or corporation making exemplary contributions to the nation's maritime strength and national security.

More than 1,900 members and civilian and military officials were in attendance at the formal banquet at the Sheraton Washington hotel.

Navy League President John M. Rau said that Lewis was selected for the award by a committee whose members "have had a total of over a century of involvement in the creation and production of those tools which have made and kept our armed forces strong."

Rau traced Lewis' career with McDonnell Douglas Corporation and General Dynamics, noting several of the major Navy programs he has been associated with, including the F-4 fighter, the family of Standard Missiles, the Phalanx gun system, the Tomahawk cruise missile, SSN 688 class attack submarines and the Trident ballistic missile submarine.

In presenting the Nimitz Award to Lewis, Rau said that "his contributions to the nation's defense have not only been immense for decades past, but obviously will be for decades to come."

Among the many dignitaries in attendance were: John F. Lehman, Secretary of the Navy, who was the principal speaker; Admiral Harold E. Shear, USN (retired), Administrator of the Maritime Administration; Admiral Thomas B. Hayward, Chief of Naval Operations, and General Robert H. Barrow, Commandant of the Marine Corps.

Convair Awarded $110 Million For MRASM

Convair has received a $110 million contract to begin full-scale engineering development of the Tomahawk Medium Range Air-to-Surface Missile (MRASM).

Convair has been involved in development of the MRASM since 1980 when the Department of Defense announced that the new tactical missile would use the basic Tomahawk cruise missile design pioneered by Convair. MRASM is intended to meet joint U.S. Navy/Air Force requirements for a medium range weapon system.

The MRASM is an air-launched, subsonic, conventionally-armed standoff weapon that has a range of about 250 nautical miles and flies at terrain-following altitudes. Its design is based on other Tomahawk variants now in production including the sea-launched cruise missile for the Navy and the ground-launched cruise missile for the Air Force.

Commenting on the award announcement, Jim Karam, Convair MRASM Program Director, said, "MRASM melds our experience with the submarine-, ship- and ground-launched Tomahawks, A-6 and B-52 air-launch integration and the low cost avionics being developed in the Midcourse Guidance Program of the U.S. Air Force. MRASM has the potential of becoming our largest cruise missile production program."

The Air Force MRASM is a 234-inch long vehicle designed to carry cratering submunitions to render enemy airfields unusable. For this mission, the B-52 will be the initial carrier aircraft. The MRASM could also be launched from the F-16 Falcon.

The Navy MRASM version is shorter — 192 inches — so it can be used for carrier operations. It has dual missions — land- and ship-attack — and is designed to be carried by A-6 aircraft.

Both the Navy and Air Force versions of the missile will be powered by a small turbojet engine. For land-attack missions, the MRASM will be guided by an inertial navigation system using updates from terrain and digital scene matching processes. Ship-attack missions will use an imaging infrared terminal guidance and a conventional high-explosive warhead.

Because of Tomahawk's modular design, the payload section can be adapted to missions against other targets, such as enemy command and control centers and air defense sites. Additionally, MRASM will be able to carry out missions at night and in adverse weather.

The full-scale engineering development contract was announced earlier this month by the Department of Defense's Joint Cruise Missile Project, which directs development, testing and production of all Convair-built Tomahawk cruise missiles.

Egyptian Delivery. *Ceremonies marking the arrival of F-16s in Egypt were held at An Shas Air Base near Cairo on March 27th. At left, David S. Lewis, GD Chairman and Chief Executive officer, chats with Egyptian Maj. Gen. Mohamed A. Hamid Helmi, EAF Chief of Staff. At right, Maj. Gen. Lofti Shabana, Commander of the EAF, speaks at the ceremony which was attended by military, government and contractor officials of the U.S. and Egypt.*

Australian F-111s To Be Upgraded

Fort Worth has been awarded a $46.3 million contract to upgrade Royal Australian Air Force (RAAF) F-111C aircraft with PAVE TACK precision guided weapons capability.

PAVE TACK is a pod-mounted electro optical system which will enable RAAF F-111C's to acquire targets and deliver weapons with precision at night, in adverse weather and from very low altitudes. The PAVE TACK pods contain both infrared and laser systems.

A team of RAAF personnel and an F-111C will come to Fort Worth late this year for installation of the first PAVE TACK modification kit. The RAAF team will be trained to operate and maintain the PAVE TACK equipment by General Dynamics personnel.

The F-111C PAVE TACK flight test program is scheduled to begin at Fort Worth in September 1984 and to be completed in May 1985.

40th Anniversary. *Fort Worth employees listen to U.S. Congressman Jim Wright, House Majority Leader, during ceremonies celebrating the 40th anniversary of the mile-long aircraft manufacturing facility. On the podium are Col. Howard L. Bodenhamer, U.S. Air Force Plant Representative, and Herbert F. Rogers, Vice President and General Manager of Fort Worth.*

Fort Worth Employees Celebrate 40 Years of Producing Aircraft

Fort Worth Division celebrated four successful decades of aircraft production during ceremonies on April 19th that were attended by several thousand employees.

The division's mile-long assembly line formally opened on April 18, 1942 and began production of famed B-24 Liberator bombers for wartime service in Europe, Africa and the Pacific. During the war, the division turned out more than 3,000 B-24s, and later produced the B-36 Peacemaker, the B-58 Hustler, the RB-57 high altitude reconnaissance aircraft and the F-111 fighter/bomber before the U.S. Air Force selected the F-16 in 1975.

"Within these walls, you have invested 671,000 man-years of labor to produce $20 billion worth of aircraft and radar systems," Fort Worth Vice President and General Manager Herbert F. Rogers told the employees. "This year, you will assemble and deliver the five thousandth aircraft produced by the division. We anticipate that the F-16 program will eclipse the wartime B-24 program and that means exceptional job security for those of us who work here," he said.

"The gigantic plant has been the anvil on which superb teams of designers, engineers and craftsmen have built each new generation of aircraft . . . " said U.S. Congressman Jim Wright, Majority Leader of the U.S. House of Representatives, and a guest at the anniversary ceremony. Wright has represented Fort Worth in Congress for nearly three decades and flew B-24 combat missions during World War II.

Tomahawk GLCM Makes Successful Flight in Utah Test

The third successful launch of a U.S. Air Force/Convair Tomahawk ground-launched cruise missile (GLCM) was made March 25th at the Dugway Proving Ground in Utah.

Following the launch from its transporter erector launcher the Tomahawk transitioned from boost to cruise flight. Using its terrain-following capabilities, the GLCM then flew a fully-guided mission, making several passes over a simulated ground target at the Utah Test and Training Range. All test objectives were met in demonstrating the GLCM's weapon system capability.

The test marked the second time that the GLCM was tested from its transporter using the operational launch control center that will support the weapon system during deployment in Western Europe.

Future tests of the GLCM will be carried out by an Air Force test and evaluation team. Eight additional flight tests and a series of ground tests are planned prior to initial deployment of the GLCM weapon system next year.

ATC to Supply Bell With Decorator Phones

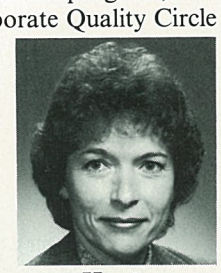
American Telecommunications Corporation (ATC) has signed a one-year agreement to supply decorator telephones to AT&T's Bell Telephone Companies.

The ATC products will be sold as part of the Bell System's Design Line™ telephone series which make up its premium selection of decorator telephone sets.

The telephones covered by the agreement include ATC's well-known character phones, Mickey Mouse, Snoopy & Woodstock, as well as the CradlePhones, Candlestick, ChestPhones and Empress models.

Dr. Bonnie Hunt To Head Corporate Quality Circle Effort

Dr. Bonnie Hunt, Administrator of Pomona's Quality Circle program, has been appointed Corporate Quality Circle Administrator in addition to her divisional duties.



Hunt

Hunt will be responsible for development of current and future Quality Circles, which enhance communications between management and employees and improve product quality.

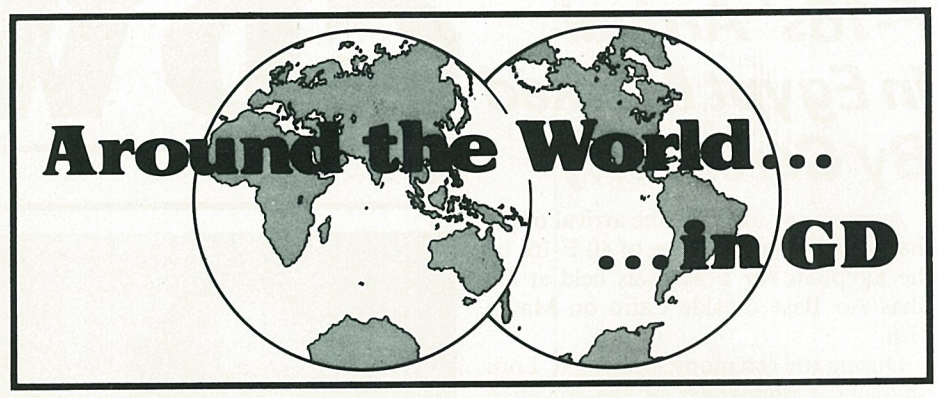
Hunt has been involved with General Dynamics' Quality Circles since 1979, when she was instrumental in setting up the company's first Circle at Pomona.

She was recently elected to the Board of Directors of the International Association of Quality Circles.

Savings and Stock Investment Values

	Feb. 1980	Feb. 1981	Feb. 1982
Salaried			
Government Bonds	$ 2.3134	$ 2.5356	$ 2.8369
Diversified Portfolio	1.7238	2.0783	1.9593
Fixed Income	1.0634	1.1746	1.3063
Hourly			
Government Bonds	2.3124	2.5329	2.8335
Diversified Portfolio	1.7591	2.1237	2.0002
GD Stock	$36.1250*	$33.7500*	$23.0000

* Reflects 2 for 1 stock split of November 1980.



CHQ: *Stuart W. MacKiernan Jr.* was promoted to Assistant to the Executive Vice President Marine & International Operations . . . *Joseph D. Loria* to Corporate Manager, Fort Walton Beach Office . . . *Elizabeth Stressel* joined as Electronic Data Processing Auditor . . . *Daniel L. Sobarina* joined as Senior Auditor . . . *Glenn R. Swartz Jr.* as Internal Auditor . . . *Keith L. Knisley* as Corporate Telecommunications Systems Engineer . . . *John G. Kilgore* as Corporate Manager, Investments & Acquisition Analysis . . . *Douglas Hemphill* as Corporate Office Supervisor, Office Services . . . *Stephen E. Dorsch* transferred from Convair and was promoted to Corporate Manager, Cruise Missile Systems.

Fort Worth: *K. H. Barnes* and *R. G. Deering* were promoted to Project Engineer . . . *P. E. Beck* to Financial Analyst Senior . . . *D. L. Buras, V. C. Hahn* and *N. J. Washuta* to Engineering Administrative Group Supervisor . . . *F. R. Campbell, R. G. Collins, B. F. Dimock Jr., R. A. Garrett, W. J. Morrison* to Logistics Group Engineer . . . *J. P. Corbeille* and *W. W. Wells* to Principal Field Service Engineer . . . *J. D. Cornelius* to Engineering Administrative Manager . . . *H. H. Devenish Jr., E. R. Mann* and *G. G. Tucker* to Logistics Engineer . . . *R. L. Fagan, G. C. Murff* and *D. E. Westerheide* to Engineering Program Manager . . . *L. W. Flomer* and *G. J. Tyra* to Chief of Logistics . . . *G. K. Gravitt, H. T. Moore* and *J. O. Queen* to General Foreman . . . *J. J. Howard* and *M. H. Roberts* to Foreman . . . *H. L. Jacocks* and *M. D. Wright* to Engineering Group Supervisor . . . *R. V. Jennings* to Project Factory Specialist . . . *A. J. Nigro, S. D. Parish, G. B. Smith, R. C. Stock* and *M. D. Yust* to Field Service Engineer . . . *B. J. Perry* to Superintendent . . . *R. Radwan* to Engineering Administrative Supervisor . . . *C. E. Richardson* to Manager, Support Integration and Control . . . *A. N. Sarvis* to Subcontract Management Coordinator.

Convair: *Terry A. Lommer* was promoted to Project Engineer . . . *Thomas J. Neitzel* to Senior Logistics Specialist . . . *Shelia A. Peralta* to Accounting Supervisor . . . *James L. Shores, James W. Eberhardt* and *Lionel G. Wilson* to Engineering Chief . . . *Jo A. Bray* to Project Coordinator . . . *James A. Cleghorn* to Chief, Procurement . . . *Donald V. Colt* to Material Operations Supervisor . . . *Donna M. Borgman* to Material Systems Analyst, Senior . . . *William K. Armstrong* to Group Engineer . . . *Robert A. Butts* to Administrative Chief . . . *Raymond C. Dishong* to Chief Product Support . . . *James T. Gregory* to Operations General Supervisor—Material Control . . . *Thomas Gregory* to Operations Supervisor . . . *Andrew L. Keller* to Chief, Engineering Estimates . . . *Richard F. Ladera* to Chief Production Support.

Electric Boat: *Charles Lavallee* was promoted to Supervisor, Quality Engineering . . . *Raymond Ayers* to Manager, Ships Management . . . *Richard Bonin* to Engineering Supervisor . . . *Robert Burridge* to Change Control Supervisor . . . *Tracey Coveyou* to Assistant Superintendent . . . *William Coxe* to Chief Nuclear Test Engineer . . . *James Hammel* to Supervisor, Design-Material . . . *Edgar Hunter* to Assistant Superintendent . . . *John Hunter* to Assistant General Manager, Engineering . . . *James Roy* to Chief of Design.

Land Systems: *Richard L. Corbin* transferred from St. Louis and was named Controller . . . *C. A. Piper* was promoted to Reproduction & Office Services Supervisor . . . *P. A. Nemes* to Quality Compliance Manager . . . *B. N. Prasad* to Project Coordinator . . . *C. Adkins* to Material Handling General Foreman . . . *P. M. Constantino* to Budget Analyst . . . *P. A. Secord* to Data Processing Shift Operations Supervisor . . . *K. T. Frosch* to Material Control Superintendent . . . *J. T. Riley* to Contact Engineer B . . . *R. M. Bailey* to Assembly General Foreman . . . *W. E. Cash* and *L. Losier* to Material Handling Foreman . . . *J. A. Gwisdalla* to Engineering Records Supervisor . . . *J. Rooks* to Vehicle Engineering Representative . . . *K. A. Bonanno* to Contracts Coordinator A . . . *S. D. Gesler* to Methods and Standards Engineer B . . . *S. L. Good* to Spares Analyst . . . *J. V. Smith* to Product Cost & Billing Supervisor . . . *G. A. Niehaus* to Financial Analyst Senior . . . *G. L. Glowacki* to Budget & Financial Analyst Supervisor . . . *C. E. West, D. R. McKercher* and *J. E. Klingler* to Layout Inspection Foreman . . . *H. B. Tippie, J. V. Jones, E. Prater, J. A. Hardesty, L. E. King, M. Bellamy* and *D. E. Coburn* to Welding Foreman . . . *J. A. Johnson* and *L. A. Wilson* to Machining Foreman . . . *V. A. White* to Test Track, Paint & Shipping General Foreman . . . *M. Trisel* to Production Control Liaison Representative . . . *P. K. Linn* to Tool Room Foreman . . . *H. T. Dezenski* to XKI Engineering Shop Supervisor . . . *G. S. McCool* to Skilled Maintenance Foreman . . . *R. C. Guernsey* and *C. E. Ecekhout* to Experimental Fabrication General Supervisor . . . *D. J. Conniff* to Buyer A . . . *D. C. Fogelsong* to TAC, VAL/VER Supervisor . . . *S. Osinski* and *A. C. Weber* to Project Engineer . . . *W. G. Hroba* to Mockup Development Supervisor . . . *J. E. Vettori* to Material Stores Supervisor-ILS.

Pomona: *Judith D. Davis* and *Charles R. Womack* were promoted to Superintendent . . . *Bruce J. Ford* to Administrative Services Supervisor . . . *Michael G. Greiner* to Electronics Engineer Senior . . . *David L. Heffron* to Plans/Analysis Staff Specialist . . . *James S. Holmes* to Contract Specialist . . . *David S. Jerdeman* to Project Representative . . . *Allan L. McFadden* and *Christopher M. Taylor* to Manufacturing Group Engineer . . . *Donald B. Schellin* to Packaging Group Engineer . . . *George A. Melendez* to Standards Lab Engineer . . . *Norman G. Alter* to Product Line Manager . . . *Vincent L. Blankenship* and *Larry M. Lyon* to Contract Administrator . . . *Ernest H. Hayes* to Quality Assurance Project Administrator . . . *David E. Hriczak* to Accounting Supervisor . . . Coordinator A . . . *Ito Manufacturing Supervisor* . . . *Fred H. Wall* to Group Engineer . . . At Camden, *Donald C. Lee* was promoted to Senior Electronics Engineer . . . *Helen White* to Buyer . . . *Norman L. Godwin* to Quality Assurance Engineer . . . *Paula A. Powell* to Manager, Employee Relations Services.

Electronics: *David M. Mattingly* transferred from St. Louis and was promoted to Manager of Finance . . . *Dennis L. Bolger* to Material Control Supervisor . . . *Francis E. Sablan* to Logistics Provisioning Coordinator . . . *Robert L. Smith* to Supervisor . . . *Thomas G. Stewart* to Technical Supervisor . . . *Teresa L. White* to Senior Financial Specialist . . . *Debra L. Baldwin* to Production Control Analyst, Senior.

Kenneth S. Lake

Lake Appointed Vice President For Convair Operations

Kenneth S. Lake has been appointed Convair Vice President - Operations, replacing S. C. Wilkinson, who has retired.

In his new post, Lake will be responsible for all factory operations, including production of cruise missiles for the U.S. Navy and U.S. Air Force; DC-10 and KC-10 fuselages for McDonnell Douglas, and Atlas/Centaur space boosters for NASA and the Department of Defense.

Lake, 45, comes to Convair from Electronics Division, where he was Vice President for Operations. He began his career with General Dynamics at Pomona in 1959, rising to Director of Manufacturing before being named to the Electronics post in 1978.

J. Kerwin, C. Norton Receive Promotions At Marblehead Lime

John Kerwin has been appointed Vice President, Construction and Development for Marblehead Lime Co., and Charles L. Norton has been promoted to General Manager for Engineering.

Kerwin joined Marblehead as a project engineer in 1970 and was promoted to Construction Manager in 1975.

Norton has held a variety of jobs in his 18-year career with Marblehead, most recently, he was Chief Engineer.

Convair Engineer Reduces Paperwork

For his suggestion that did away with a duplicate set of paperwork, Don Holzer, a Senior Test Engineer in Convair's Test Laboratories, is $1,460 richer.

Previously, under Convair's customer-approved cost accounting system, two Work Assignment Plans (WAPs) were prepared: one for engineering and a separate one for Engineering Test Support and the factory. This resulted in essentially duplicate documents being written, coordinated and signed, copied and distributed. These WAPs were then used by workers to charge their time against various jobs.

Identical tasks were required by each WAP. Engineers described the tasks required and assigned line numbers, but each WAP went through separate signature cycles, reproduction and distribution.

Using Holzer's suggestion, $14,596 in estimated labor and reproduction costs will be saved the first year, resulting in his award.

Air Force Technicians Set Record For Installing an F-16 Avionics Shop

When an Electronics F-16 Avionics Intermediate Shop (AIS) was sent to Okinawa last year, U.S. Air Force technicians tried to see just how quickly the shop could be installed and placed in operation. In five hours, power was applied to the first station.

Several months later, when an AIS was sent to Hahn AB, West Germany, the 50th Tactical Fighter Wing accepted the challenge and reduced the installation time to 2 hours and 35 minutes.

Now, the record stands at one hour, 40 minutes and 59 seconds, set by members of the 363rd Component Repair Squadron (CRS) at Shaw AFB, S.C., and program officials at Electronics Division are wondering just how much lower the time can go.

Dave Bean, F-16 AIS Technical Support Manager for Electronics, said, "After Hahn, I thought that two hours was about the minimum time, and Shaw beat it. Now, I'd have to guess that an hour and a half is just about the least time a base can take to set up a shop."

The installation at Shaw was planned by USAF Tech. Sgt. Jim Morgan, a member of the Integrated Avionics Branch of the 363d CRS. "Our plan allowed 105 minutes for the whole procedure; we did it in 100," Morgan said.

The first station on line was the Computer/Inertial test station. The Radio Frequency station, which was supposed to be last, actually was on-line second. Minutes later, the Pneumatics/Processors station and the Displays/Indicators station were also powered up.

Record Breakers. *Members of the 363d Component Repair Squadron, Shaw AFB, S.C. use air casters to move cabinets of their F-16 Avionics Intermediate Shop (AIS) into position as they set a new record for AIS installation.*

Highly Adaptable. *GD Land Systems Division's prototypes of the U.S. Army's High Mobility Multipurpose Wheeled Vehicle are shown in the utility version with a soft top (above) and with a kit to mount the TOW antitank missile system (below). The 11 prototypes being delivered to the Tank-Automotive Command will compete with vehicles from two other companies in a five-month test.*

Land Systems Delivers Prototype Of Light, Wheeled Vehicle for Army

GD Land Systems Division delivered its first prototype of a new U.S. Army vehicle on March 26th one day ahead of schedule.

The delivery was made by GD President Oliver C. Boileau, who drove the prototype from GDLS's Engineering Department in Center Line, Mich., to the nearby offices of the Army's Tank-Automotive Command.

The GDLS prototype is in competition with two other vehicles for an Army contract to produce a High Mobility Multipurpose Wheeled Vehicle (HMMWV). According to Army requirements, the HMMWV (pronounced humvee) must be able to climb a 60-degree grade and accelerate from 0 to 30 miles per hour in six seconds. In addition, it must be able to run at least 30 miles on flat tires and have a fuel tank that will not rupture if a half pound of dynamite goes off under a tire.

The HMMWV can serve as a utility vehicle, as a weapons carrier or as an ambulance. The weapons carrier version mounts a TOW missile system, and the vehicle can carry a mount for a machine gun or a 40-mm. grenade launcher. It can also transport mortars with standard ammunition loads.

The ambulance version can evacuate casualties or operate as a battalion aid station.

Work on the GD Land Systems version of the HMMWV began in 1977, and field tests have been conducted at military bases throughout the United States and in Saudi Arabia.

The basic HMMWV is a lightweight vehicle with an aluminum body and four-wheel drive. The drive train combines a Deutz 160-horsepower, air-cooled diesel engine with an automatic transmission. Crew accommodations include three seats across the front, plus a jump seat in the cargo area.

The General Dynamics prototype of the HMMWV is in competition with vehicles from AM General Corporation and Teledyne Continental Motors. The Army has announced its intention to select a contractor for HMMWV production next December; a five-year production buy of 53,000 vehicles is planned.

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DatagraphiX To Sell New Laser Printer

DatagraphiX has introduced the Model 9820 Laser Printer, a high-speed off-line page printer designed to accept print data sets on magnetic tape from a wide range of host computers. The 9820 can print output from most IBM, IBM-compatible, Burroughs, NCR, Honeywell and Univac medium to large-scale computers.

The 9820 operates at speeds up to 21,000 lines per minute, and can print combinations of page formats of 6, 8 or 12 lines per inch and 10, 12 or 15 characters per inch.

Cooperative Tracking System Used in Sea Range Exercises

Electronics' Cooperative Tracking System (CTS) successfully completed its first tests recently. The new range instrumentation system is designed to locate and track the position of ships and aircraft taking part in U.S. Navy Mobile Sea Range exercises.

The system, designed and built by Electronics, demonstrated its capability during a week-long exercise off the Southern California coast involving 20 ships and aircraft. The system is currently capable of tracking up to 60 participants over distances up to 400 miles.

The CTS uses measurements of all participating ships, aircraft and target drones to calculate their position. It is the first range instrumentation system capable of operating without fixed land-based reference stations.

For a Mobile Sea Range exercise, a computer-controlled Master Station housed in a portable shelter is installed aboard one of the participating ships. The Master Station schedules all of the ranging commands to transponders located aboard other participants. The computer then collects range measurements from the participants and calculates their positions relative to others in the exercise. The system is accurate to within 200 feet.

As a part of the Mobile Sea Range, CTS provides commanders and exercise directors with a real-time view of the location of all their players and assists in exercise control and range safety during live-fire exercises. The computer recording capability of the system allows replay and post- exercise reconstruction for training purposes.

Electronics has been developing the CTS under contract to the Navy since 1977. The division has designed and installed instrumented test and training ranges for the Navy, Air Force and Army at seven locations in the United States, including Fort Hunter Liggett, Fort Irwin and Point Mugu, Calif.; Yuma, Ariz.; Fort Bliss, Tex.; Nellis AFB, Nev.; and Hill AFB, Utah.

U.S. Air Force Thunderbirds Will Fly F-16s

The U.S. Air Force Thunderbirds, the famous aerobatic demonstration team, will begin using the F-16 Falcon in shows later this year.

Gen. W. L. Creech, Commander of the Tactical Air Command, said at Langley AFB, Va., the Fort Worth-built aircraft will replace the T-38, a trainer which has served the Thunderbirds since 1973.

Creech noted that it is "time for a change" from a trainer to a fighter aircraft, and the F-16 has "excellent characteristics for the Thunderbirds' mission."

The general said the team had been prevented from appearing at shows overseas because of the T-38's short range, a problem the F-16 does not have.

The team will use seven primary F-16s and one backup, plus one T-38 support plane. The Falcons will be combat ready and capable of deploying with a fighter unit if a crisis arises.

The F-16 is the seventh aircraft assigned to the Thunderbirds. It was preceded by the F-84G, F-84F, F-100, F-105, F-4 and T-38. The team was formed in 1953 at Luke AFB, Ariz.

Improved SM-2 Scores Direct Hit On Drone in Test

A Standard Missile-2 Block II missile was successfully launched and scored a direct hit on a drone target during a test on March 19th at White Sands Missile Range, N. M.

The missile, produced at Pomona, is an improved version of Standard Missile-2 Block I. The primary improvements include faster performance, more maneuverability and increased accuracy.

The test of Standard Missile-2 Block II missile was the second in which a direct hit was made against a drone.

Several additional flight tests are scheduled later this year, to be followed by at-sea test firings to demonstrate the missile's readiness for production.

Standard Missile became the U.S. Navy's major surface-to-air weapon system in the late 1960s, and since then more than 8,000 have been delivered by Pomona. Eighty U.S. Navy ships and 29 ships of allied navies are armed with various versions of Standard Missile.

Nondestructive Tests Discussed by Group

The corporate Nondestructive Inspection Working Group held its Spring 1982 meeting at Pomona on April 6 and 7th.

The group monitors General Dynamics' activities in detecting internal and concealed defects in materials using techniques that do not damage or destroy items being tested.

"Group members meet quarterly to exchange ideas and techniques and to establish uniform practices throughout the corporation," according to Kenneth W. Hammer, Chairman of the group.

He said the quarterly meetings are also held to exchange evaluations on equipment and aid in problem solving.

In April, the group discussed the manufacturing technology program in General Dynamics and how nondestructive testing relates to the program.

F-16s Delivered To Base in Egypt

Continued from Page 1

with the Air Force for many years to come in many programs."

In his remarks, Gen. Tixier said the F-16s "represent a fine example of continuing defense cooperation between the United States and Egypt."

The ceremony was attended by the members of the F-16 support team who have been in Egypt over the past several months. General Dynamics Services Company (GDSC) has been responsible for coordinating new base construction to support the F-16. With assistance from Fort Worth Division and United Technologies personnel, GDSC is providing interim contractor services to the EAF for F-16 personnel training and maintenance.

Other General Dynamics officials in attendance were: Herbert F. Rogers, Vice President and General Manager of Fort Worth; Otto J. Glasser, Corporate Vice President-International; Dorhman E. Veirs, GDSC President; Ted S. Webb, Fort Worth Vice President-F-16 Programs, and Rolf Krueger, Vice President-F-16 Logistics at Fort Worth.

Four days before the delivery ceremony, Congress had been notified that Egyptian officials had asked for authority to buy an additional 40 F-16s and spares. Congress had also been notified of a request by Egypt to purchase 220 M60A3 main battle tanks that are produced by GD Land Systems Division.

Dividends Declared

The Board of Directors of General Dynamics Corporation on April 1st declared a regular quarterly dividend of 18 cents per share on the company's common stock. A dividend of $1.0625 was declared on the corporation's Series A preferred stock. Both dividends are payable on May 17, 1982 to shareholders of record on April 16th.

M1 Demonstration. *One of the two M1 tanks that were delivered to the U.S. Army by the Detroit Army Tank Plant on March 31st demonstrates its capability on the plant's test track following the ceremony.*

M1 Tanks Delivered to U.S. Army From Assembly Line in Detroit

The first two M1 main battle tanks built at the Detroit Arsenal Tank Plant were delivered to the U.S. Army by General Dynamics Land Systems Division during brief ceremonies on March 31st.

Maj. Gen. Duard D. Ball, Army M1 Program Manager, formally took delivery of the tanks with the signing of the official acceptance documents. In attendance were more than 3,000 military and civic officials, supplier representatives, personnel from the Army Tank-Automotive Command and GDLS employees.

Gen. Ball said the "M1 is a quantum step forward in combat power for our divisions." He said he had just returned from West Germany where troops operating the M1 told him they are very impressed by its performance — as are West German civilians who see them zipping down highways at 45 miles an hour.

"The M1 is the finest combat vehicle in the world today," Ball said, "and with the best efforts of all concerned, we expect it will even get better in the years to come."

J. D. Neu, Vice President of Manufacturing for GDLS, said: "The M1's departure from conventional tanks can be likened to the revolution in the aircraft industry with the introduction of the jet engine."

Discussing the M1 production program at the plant, Neu said that it has gone very smoothly. "There has not been a single major hitch in the assembly program so far, " he said.

Guests later saw the two M1s demonstrated on the one-mile oval test track adjacent to the plant and then toured the recently refurbished 1,098,000-square-foot government-owned tank manufacturing facility.

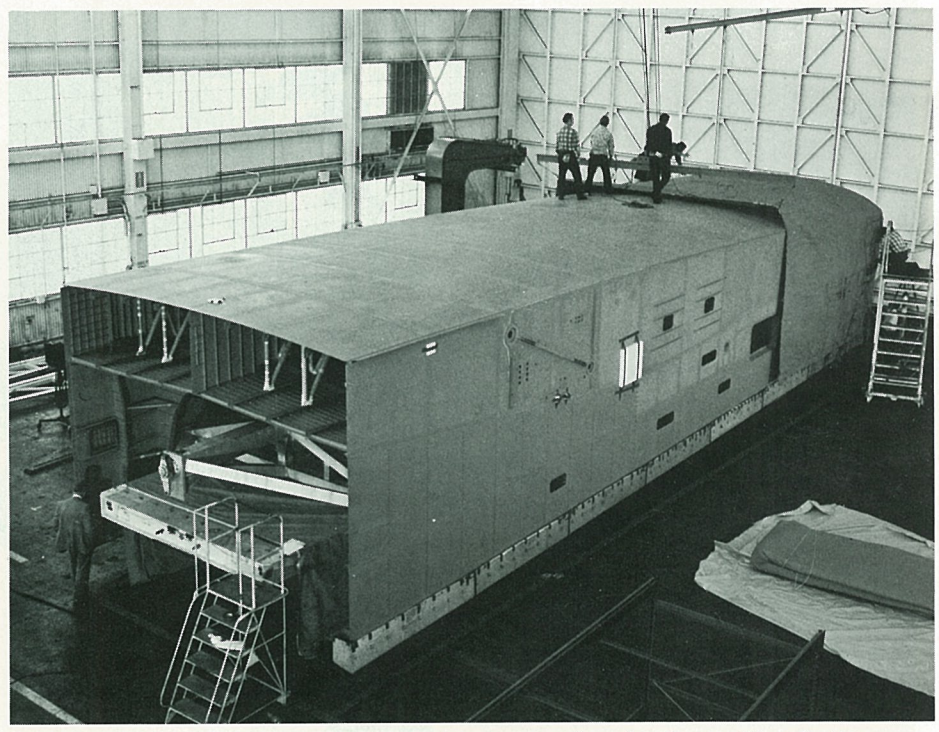
For the first time since World War II, the tank plant is building two different tanks on parallel assembly lines. In addition to the M1 assembly operation, the plant is producing M60A3 tanks at a rate of 30 per month. Current orders for M60A3s extend production into the mid-1980s.

The M1 tank will be the Army's principal armored vehicle whose role on the battlefield is to defeat enemy forces using firepower and movement. It weighs 60 tons and carries a 105-mm. cannon. The M1's four man crew has the capability to engage a full spectrum of enemy ground targets with a variety of accurate point and area fire weapons.

In order to meet the Army's requirements for the M1, the Detroit Arsenal Tank Plant will gradually increase production to 30 tanks per month by early 1983, matching the monthly rate already established at the Army Lima Tank Plant in Lima, Ohio, which is also operated by GDLS. The Lima facility has been producing approximately 30 M1s per month since late 1981.

Both the Detroit and Lima plants are scheduled to reach production rates of 45 M1s per month in 1984. The Army has announced plans to procure more than 7,000 M1s over the next several years.

General Dynamics employment at the Detroit Arsenal Tank Plant is currently 2,200 hourly and salaried personnel. Employment is expected to gradually increase to 2,600 by 1984.



Discovery Mid-Fuselage. *A Convair team readies the Space Shuttle Discovery mid-fuselage for shipment to Rockwell International's Palmdale (Calif.) facility. The 12,660 pound mid-body — nearly 400 pounds under contract weight limit — was delivered last month.*

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688 Submarine Contract Awarded To Electric Boat

The U.S. Navy has awarded Electric Boat a $239 million contract for construction of another SSN 688-class fast-attack submarine.

The contract is for EB's 22nd submarine of the 688 class. The ship, SSN 725, is scheduled for delivery by January 1988. So far, Electric Boat has delivered 11 of the 6,900-ton vessels to the Navy.

SSN 725 will be equipped with 12 vertical tubes for launching the Convair-designed and -built Tomahawk cruise missiles for land-attack or ship-attack missions. All future 688-class submarines will be equipped with the vertical launch tubes for Tomahawks.

The new contract is the third EB has received this year. In February, the shipyard received a contract for another 688-class submarine, and a month earlier, it was awarded a contract for the ninth Trident missile-firing submarine.

Congress has authorized 39 688-class submarines, the most advanced vessels of their type in the world.

* * *

Trident Engineering Contract to EB

The U.S. Navy recently awarded an $18.9 million contract to Electric Boat for Trident engineering and design services.

The contract, a continuation of an earlier award, is for developing maintenance handling procedures for the powerful missile-firing subs, upgrading technical manuals and engineering and testing support.

The shipyard which delivered the first of the 560-foot, 18,750-ton Tridents, USS *Ohio,* last October currently has eight more under construction.

The second and third ships in the class — *Michigan* and *Florida* — have already been launched. The *Michigan* is scheduled for delivery later this year and the fourth — *Georgia* — will be launched this year.

RAM Intercepts Simulated Missile At White Sands

A RAM missile, developed and produced by Pomona division, successfully intercepted a remotely controlled aircraft simulating an antiship missile at White Sands Missile Range, N.M. on Wednesday, April 28th.

The test was part of a series of guided flight tests of RAM, also known as the Rolling Airframe Missile. RAM is a lightweight, low-cost, high firepower missile system designed to provide antiship missile defense for a wide range of vessels.

Additional flight tests are scheduled later this year, including guided flights over water at the Pacific Missile Test Center, Point Mugu, Calif.

The RAM system is a joint development of the U.S. Navy and the governments of the Federal Republic of Germany and Denmark.

Chairman's Report. *David S. Lewis, Chairman and Chief Executive Officer, presents his report to the shareholders at the General Dynamics Corporation Annual Meeting on May 6th in St. Louis. Seated at table (from left) are: John P. Maguire, Vice President and Secretary; Henry Crown, Chairman of the Executive Committee; Oliver C. Boileau, President, and Gorden E. MacDonald, Executive Vice President-Finance.*

Lewis Reviews Company at Annual Meeting; Reports a Record $13 Billion Funded Backlog

As General Dynamics moves forward in 1982, it is in a very strong position, having not only a very large number of major defense programs, but also a number of fundamentally sound commercial operations prepared to take advantage of improvements in the economy, David S. Lewis, GD Chairman and Chief Executive Officer, reported to shareholders at the Annual Meeting May 6th.

Lewis said earnings for the three-month period ending March 31, 1982 totaled $28.3 million, or 51 cents per share, compared to $30.8 million, or 56 cents per share, for the same period of 1981. Pretax earnings in the first quarter of this year were $46.7 million, compared to $44.4 million last year. Sales for the quarter were $1.23 billion in 1982, which was very close to the $1.24 billion for the same period a year ago.

"In the first quarter of this year, the recessionary pressures that hurt us last year continued to impact adversely all of our commercial businesses, without exception," Lewis told shareholders at the meeting. "Our telecommunications, information systems and resources lines of business had poorer first quarters in 1982 than in 1981, while the earnings of marine and aerospace divisions were somewhat better."

In his review of the quarter's major developments, Lewis spoke about the acquisition of Chrysler Defense, Inc., now Land Systems Division. He said, "When we were approached about our interest in purchasing Chrysler Defense, Inc., we were not sure whether we were interested or not. But after a number of senior people from several of our divisions and the corporate office spent many man-days visiting and studying the various design and manufacturing operations and the earnings potentials, we became very interested indeed . . . .

"It has now been seven weeks since General Dynamics took over this major operation, and we are more convinced than ever that Land Systems provides General Dynamics with a major opportunity for the years ahead. They have a team of capable engineers and production and management people; however, we believe we can add improved management information and production systems and, importantly, provide significantly more resources for research and development and for new engineering and manufacturing facilities to improve Land Systems productivity."

Turning to Electric Boat, Lewis noted the division now has a backlog of 11 688-class fast attack submarines and eight Trident submarines.

"Two 688s and one Trident are scheduled for delivery this year, and there is little doubt that they will be delivered on schedule," he said.

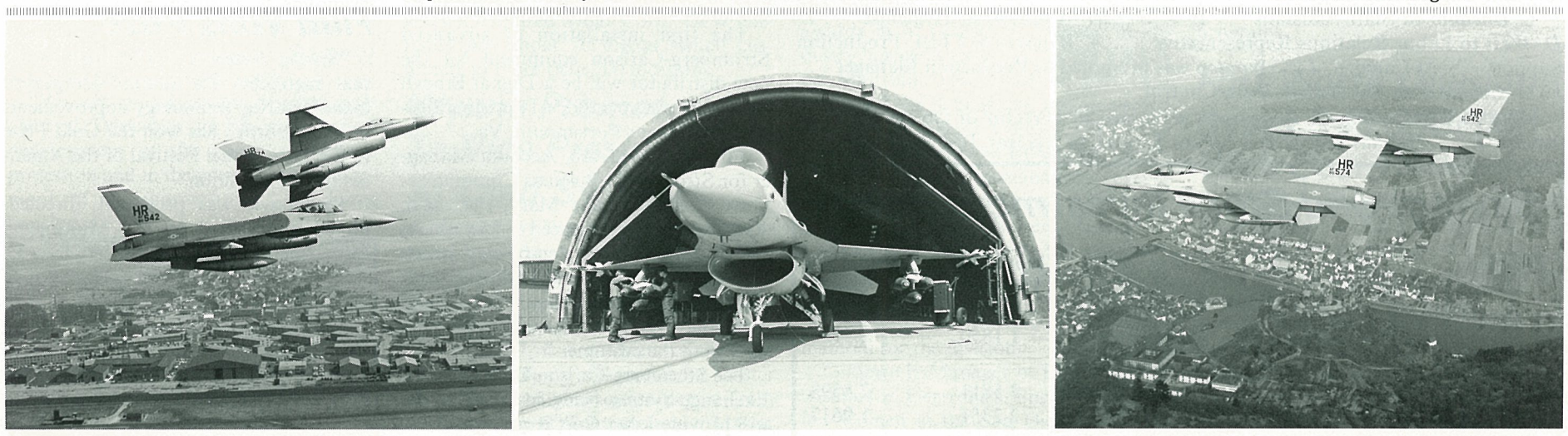
Lewis also discussed the situation at Quincy Shipbuilding Division: "Like almost all American shipyards involved in commercial work, the Quincy division is having trouble getting new business to keep its highly skilled team together. While we have provisional contracts for nine of the giant liquefied natural gas tankers, it appears that regulatory problems faced by the utilities will very likely postpone the start of construction on these ships for at least another two years. In the meantime, Quincy is actively pursuing contracts for combat and support ships planned to be procured by the U.S. Navy as part of its major ship expansion program.

"We have never had more challenges, nor more opportunities than we have at the present time. I believe that the 88,000 men and women of General Dynamics are up to those challenges and are determined to capitalize on those opportunities." — David S. Lewis

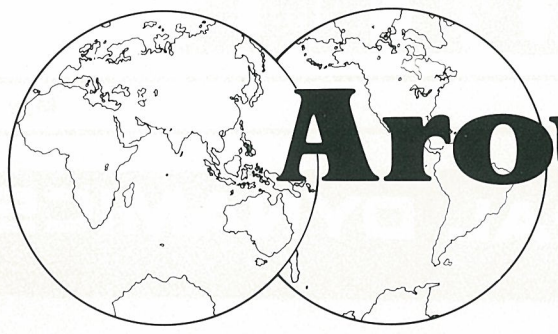
"In aerospace, the F-16 continues to be a real shining star," Lewis said. "To date, more than 680 aircraft have been delivered to the air forces of seven countries and procurement for three additional countries, Pakistan, South Korea and Venezuela, has been approved. From these 10 air forces, present planning calls for total procurement of nearly 2,800 F-16s, and we believe that there are significant opportunities for F-16 sales to other allied countries as well.

" . . . There have been significant changes in the planning of the U.S. Navy and Air Force for the Convair Tomahawk cruise missile. The sea-launched Tomahawk is scheduled to go into service

Continued on Page 4



Falcons in USAFE. *The first USAF F-16 Falcons to be permanently stationed in Europe are assigned to the 50th Tactical Fighter Wing at Hahn AB, West Germany. Above, a pair of F-16s fly over the base (left) and over the Mosel River Valley in Germany's Eifel Region (right). At center, crewmen inspect an F-16's bomb load outside an aircraft shelter at Hahn. The aircraft are assigned to support the U.S. Air Forces in Europe.*



Around the World... in GD

CHQ: *Richard P. Hora* transferred from Fort Worth and was appointed Director of Financial Planning-Aerospace . . . *George Sehr* joined as Corporate Manager of Financial Planning-Aerospace . . . *Edward J. Stiften* was promoted to Corporate Manager, Financial Planning-Aerospace . . . *John Kilgore* joined as Corporate Manager of Investments and Acquisition Analysis . . . *David R. Moyer* transferred from Fort Worth Regional Office to the San Diego Regional office as Corporate Internal Audit Manager . . . *Tom Baranouskas* has been promoted to Assistant Director, Financial Planning-Land Systems/Marine . . . *Denise A. Gibble* was promoted to Corporate Financial Analyst . . . *Rebecca M. Juengst* to Employee Benefits Accounting Representative . . . *Thomas P. Moody* to Marketing Manager . . . *Charles L. Warren* joined as EDP Auditor . . . *Frank W. Zwigard* joined as Senior Auditor.

Fort Worth: *B. B. Lambert, C. W. Langley, L. G. Collier* and *D. R. Fleming* were promoted to Engineering Chief . . . *R. J. Lang* to Manager of Finance . . . *T. C. Lawson* to Logistics Group Engineer . . . *W. A. Legg, F. F. Schlosser, R. G. Cozart* and *E. P. Everitt Jr.* to Logistics Engineer . . . *J. D. Lobban* to Cost Reduction Specialist . . . *C. E. Moore* to Chief of Industrial Relations . . . *D. F. Palmer* to Chief Experimental Test Pilot . . . *W. J. Paquette, R. F. Reams, A. B. Riley Jr., L. C. Seth, G. H. Hayward Jr., J. W. Kenney* and *M. H. Kite* to Project Engineer . . . *H. L. Rupert* to Inspection Supervisor . . . *G. R. Sadow* to Engineering Program Manager . . . *M. D. Stewart* to Manufacturing Technology Supervisor . . . *M. J. Stewart* and *J. D. Wilson* to Program Analyst, Senior . . . *B. G. Baker* to Administrative Services/Supervisor . . . *D. R. Cassidy* to Material Project Administrator Senior . . . *A. E. Clare* to Engineering Manager . . . *R. W. Connolly* to Logistics Specialist . . . *G. P. Dawson* to Assistant Project Engineer . . . *R. T. Grant* to Program Estimator, Senior . . . *R. D. Griffin* to Engineer . . . *T. A. Hay* and *W. A. Van Stone* to Field Service Engineer . . . *J. D. Hearne* to Tooling Supervisor . . . *J. W. Jackson Jr.* to General Foreman . . . *J. A. Jimenez* to Scheduler, Senior . . . *S. M. Suarez* to Logistics Supervisor . . . *R. L. Weese* to Contract Proposal Estimator . . . *R. C. White* and *E. L. Whiting* to Foreman . . . *D. C. McDonald* to Modernization and Development Liaison Man, Senior.

Convair: *Daniel E. Belchamber* was promoted to Operations General Supervisor-Plant Services . . . *Ronald D. Blunck* to Project Engineer, Senior . . . *Edward H. Bock* to Program Engineering Chief . . . *Steven M. Caira* to Operations Supervisor-Manufacturing Control . . . *Anthony H. Christensen* and *Louis P. Eidenmiller* to Project Engineer . . . *Andrew D. Falken* to Operations Project Administrator . . . *George G. Gigliotti* to Manager, Accounting . . . *John J. Jodka* to Chief of Finance . . . *Joseph R. Bain* to Strategic Analysis Manager . . . *Michael D. Barry* to Operations Representative . . . *Christopher J. Bauman* and *Charles F. Engebretson* to Operations Supervisor-Manufacturing Control . . . *David A. Berry* and *John F. Farmerie Jr.* to Operations Supervisor-Manufacturing . . . *David B. Clausen* and *John A. Lambert Jr.* to Operations Supervisor-Industrial Engineering . . . *John J. Collins* and *John E. Endicott* to Configuration Management Chief . . . *Bruce A. Ganoe, Howard W. Burns* and *Robert D. Small* to Program Manager . . . *Brent L. Harritt* to Senior Engineer . . . *Neal E. Hearn* and *Craig L. Varty* to Chief-Industrial Engineering . . . *Richard W. Lima* to Manager-Contracts . . . *James W. Rose, James M. Rager* and *Joseph R. Wiest* to Group Engineer . . . *Frederick N. Minter* to Manager-Government Requirements . . . *Richard F. Mutsch* to Operations Supervisor, Plant Services . . . *Billy H. Oman* to Engineering Chief . . . *John W. Porter* to Marketing Manager . . . *Michael A. Short* to Engineer-Manufacturing Engineering . . . *James G. Sugg* to Quality Assurance Supervisor . . . *John M. Venturini* to Senior Engineer, Manufacturing Engineering . . . *Douglas C. White* to Business Planning Administrator . . . *Donald J. Anderson* to Operations General Supervisor-Manufacturing Control . . . *David H. Vernon* to Manager, Quality Assurance . . . *Thomas N. Johnson* to Senior Logistics Specialist . . . *Alicia B. Karam* to Engineering Documentation Representative.

Pomona: *D. R. Dearborn* was promoted to Electronics Engineer, Senior . . . *C. S. Dwyer* to Chief, Pre-Manufacturing Engineering . . . *W. R. Gettler* to Estimating Specialist . . . *G. L. Hastings, R. F. Monteros* and *G. E. Smith* to Procurement Administrator . . . *S. C. Hernandez* to Test Engineer . . . *G. C. Hill* to Chief, Manufacturing & Material Control . . . *D. T. Kelber* to Material Control Supervisor . . . *R. G. McQueen* to Manufacturing Group Engineer . . . *S. C. Olauson* to Packaging Group Engineer . . . *J. D. Plummer* to Project Administrator . . . *L. F. Pond, L. D. Edwards* and *W. P. Hargreaves Jr.* to Group Engineer . . . *R. B. Westerman* and *R. K. Rice* to Quality Assurance Specialist Senior . . . *T. J. Barbee* to Superintendent . . . *R. Esslinger* to Quality Assurance Project Administrator . . . *M. L. Holmes* to Project Engineer . . . *L. L. Samples* to Plant Engineering Supervisor . . . *F. H. Seyfarth* to Electronics Engineer . . . *J. L. Unciano* to Staff Assistant . . . *B. J. Wenzel* to Industrial Hygienist . . . *L. D. West* to Labor Relations Representative . . . *A. Wouters* to Chief, Production Support . . . At Camden, *J. G. Wooten* was promoted to Production Manager . . . *L. D. Gebhardt* to Supervisor, Data Control.

Electric Boat: *Kenneth Brown* was promoted to Director of Operations-Construction . . . *Thomas Hagist* and *Steven Sondak* to Nuclear Test Supervisor . . . *Bruce Arsenault* to Assistant Program Management Chief . . . *Frederick Keith* to Chief of Engineering . . . *James Lewis, Edward Browne, Gary Brochu, Kevin Carroll, Kenneth Cohen, Darwin Cook, Michael Crimmins, Paul Duff, Arthur Eklof, Kenneth Giacomuzzi, Charles Heilberger, Gerald Heulitt, Elizabeth Morrison, Lawrence Olivieri, Darrell Patterson, Dale Purvis, Kevin Rodgers, Edward Snyder* and *Alan Spadafora* to Foreman . . . *Christopher Mullaney* to Chief of Trade Planning . . . *Robert White* to Director of Engineering . . . *William Babbitt* to Engineering Supervisor . . . *James Coney* to Manager of Plant Protection.

Land Systems: *C. H. Stout* was promoted to Administration Manager . . . *D. C. Owens* to Security Manager . . . *R. A. McGuire* to Quality Control Manager . . . *J. A. Floyed* to Material Control Supervisor . . . *R. H. Fryer* and *R. J. Andre* to Product Design Supervisor . . . *T. C. Padula* and *W. M. Funk* to Product Design and Development Supervisor . . . *J. L. Yount* to Production Control Program Coordinator . . . *K. A. Bryan* to Budget Analyst . . . *M. C. Roualet* to Quality Liaison Engineer . . . *A. Hansford* to Material Handling General Foreman . . . *G. L. Hughes* to Skilled Maintenance Foreman . . . *P. Gabringer* to Methods and Standards Engineer, Senior . . . *R. A. Duval* and *G. E. McCarty* to Tool Room Foreman . . . *R. J. Jacob* to Final Acceptance & Inspection Foreman . . . *R. P. Michalzuk* to Vehicle Engineering Representative.

Quincy: *Kent Webber* to Guarantee Engineering Chief . . . *Ted Davis* to Engineering Supervisor-Project Control . . . *Ralph Grundy* to Engineering Chief-Marine . . . *Norm Harrington* to Assistant Manager-Planning . . . *Alden Sproul* to Engineering Supervisor . . . *Mark Sullivan* to Chief-Financial Analysis . . . *Kevin Worley* to Supervisor-Cost Control.

Electronics: *C. F. Brown, Victor Maskey* and *Said Daoudi* were promoted to Product Test Engineer, Senior . . . *Robert Cosgrove* to Senior, Industrial Relations Representative . . . *J. W. Cox* to Manager of Manufacturing . . . *Walter Eastin* to Superintendent . . . *James Frazier* to Logistics Provisioning Analyst . . . *Kimberly Grucza* to Financial Analyst . . . *Michael Horn* and *Michael Shonk* to Logistics Provisioning Analyst, Senior . . . *Gary Jackson* to Publications Editor . . . *Ronald Karel* to Operations Project Manager . . . *Russell McKay* to Quality Control Engineer, Senior . . . *Carl D. Nelson* to Director, Product Support . . . *Walter Robertson* to Programs Director-F-16 AIS Program . . . *Richard Switzer* to Planning and Control Specialist . . . *Joseph Tobie* to Project Manager.

DatagraphiX: *Milton Lockett* was promoted to Manager, Manufacturing . . . *Gyula T. Kish* to District Service Manager . . . *Ronald W. Moehlenhof* to Regional Sales Manager . . . *Fred H. Pinckney* to Manager Facility-Plant Services . . . *Joe L. Navarro* to Supervisor, Professional Placement . . . *Randall E. Parrish* to Project Engineer . . . *Donald E. Ryer* to Supervisor of Quality Assurance Engineering . . . *John F. Goldsmith* and *Terry S. Rabe* to District Sales Manager.

DSD: *James O. Guth* transferred from Central Center to Corporate Headquarters and was promoted to Site Manager. At Central Center, *T. S. Brown* was promoted to Supervisor, Engineering Software . . . *W. W. Magnus* to Manager GDCC site . . . *R. A. Carpentier* to Industrial Relations Representative . . . *M. J. Fox* to Computer Systems Analyst . . . At Eastern Center, *K. Verno* was promoted to Production Control Analyst, Senior . . . *D. A. Goodwin* to Computer Systems Specialist.

ATC: *Dennis Stern* was promoted to Manufacturing Engineer . . . *Karen Davis* to Manager, Management Systems . . . *Steve Goldstein* to Supervisor, Accounting . . . *Kenneth Graham* to Manager, Manufacturing.

Stromberg-Carlson: *Thomas R. Kubik* transferred from St. Louis and was promoted to Senior Business Planner.

GDSC: *F. Boop* was promoted to Director of Finance . . . *J. Brilliant* to Chief Industrial Relations . . . *J. Trinkle* to Senior Training Specialist.

Savings and Stock Investment Values

	Mar. 1980	Mar. 1981	Mar. 1982
Salaried			
Government Bonds	$ 2.3372	$ 2.5835	$ 2.8632
Diversified Portfolio	1.6055	2.1869	1.9218
Fixed Income	1.0719	1.1850	1.3182
Hourly			
Government Bonds	2.3363	2.5811	2.8598
Diversified Portfolio	1.6388	2.2351	1.9617
GD Stock	$33.5600*	$33.5000	$24.1250

* Reflects 2 for 1 stock split of November 1980.

General Electric Becomes Newest Distributor for Stromberg-Carlson

General Electric's Telecommunications Systems Operations, which became the newest distributor for Stromberg-Carlson's digital telephone switching systems in January, recently made its first sale — to another division of GE.

The first installation of advanced Stromberg-Carlson equipment for the new distributor will be a Digital Branch Exchange system at GE's Television Business Division at Portsmouth, Va.

James A. McGrath, Account Manager for Stromberg's Business Communications Center at Lake Mary, Fla., said, "General Electric replaced a 35-year-old Bell System Centrex step-by-step switch with a modern Digital Branch Exchange system that offers custom features and cost control systems at very substantial savings to the customer."

The Stromberg-Carlson Digital Branch Exchange system being installed at GE will provide Least Cost Routing, Private Automatic Message Accounting, Traffic Measurement Recording and Area Code/Office Code restriction.

GE's Television Business Division manufactures black-and-white television sets and big screen color television systems and other types of electronic equipment.

Film Wins Prize

"Strong America,"a 15-minute movie that highlights the aircraft component manufacturing technology improvements at Fort Worth, has won the Gold Prize in the 15th annual Festival of the Americas film competition.

The movie was produced, directed, filmed and edited by the Multimedia Department at Fort Worth. Andrew C. Thacker, Deputy Program Manager of the F-16 Technology Modernization Program, was executive producer of the film; Jerry Ratliff, Multimedia Supervisor, was producer, and Fort Worth cameramen Bob Waldrop and Gary Tolbert shot the film.

It was called "an outstanding creative production" by J. Hunter Todd, President of the film festival.

Horace Booth, Allen Cox Named Silver Knights of Management

Two Fort Worth executives with 55 years of service between them in the division's National Management Association chapter, were presented with the group's Silver Knight of Management Award at a meeting April 29th.

The joint awards, the highest a local chapter of the association can offer, were made to Horace Booth, General Counsel for the division, and Allen B. Cox, Director of Industrial Relations.

Gene Garrett, Chief of the Taxes, Travel and Insurance Department and Senior Vice President of the association, made the awards to the two men, praising their service as Executive Advisors to the club for the last decade.

Normally, a chapter can present only one Silver Knight award each year but an exception was granted by the association's national leadership.

Booth, who retires at the end of this month, has been a member of the chapter for about 30 years; Cox for 25 years.

In other Management Club business, Jim McGoodwin, Manager of Facilities Engineering, was named the new club President and Charlie Bogle, General Foreman in F-111 modification and restoration, was named Chairman.

L. K. Tate Promoted To Vice President At Charlottesville

Lawrence K. Tate has been promoted to Vice President and General Manager of Stromberg-Carlson Corp.'s Telephone Systems Center in Charlottesville, Va. He had been Plant Manager since 1981. Tate is responsible for the overall management of the center, including the engineering, operations, marketing, industrial relations, and products/program management functions.

Tate has been with Stromberg-Carlson for 16 years and has held the positions of Plant Manager, Operations Manager, Materials Manager, Quality Engineer, and Production Engineer at TSC. A native of Virginia, he received a Bachelor of Science degree in electrical engineering from the University of Virginia in 1965 and a Master of Commerce degree from the University of Richmond in 1976.

Scholarships For Quality Assurance Awarded to College

Two $500 scholarships in the quality technology field have been established by Fort Worth in the Tarrant County Junior College (TCJC) district.

The scholarships are named in honor of J. Y. McClure, past Vice President of Quality Assurance at Fort Worth. The division, working closely with the American Society for Quality Control, has helped establish courses in the quality career field at TCJC and other area colleges and universities.

Charles L. McKinney, President of the South Campus of TCJC, wrote D. J. Talley, the present Vice President of Quality Assurance at the division, that the scholarships were "a most generous donation and will greatly help worthy students at TCJC pursue their education in the field of quality assurance technology.

"It is just one more example of the cooperative spirit and relationship which has existed between General Dynamics and TCJC over the years. It epitomizes in a very real sense the phrase . . . 'Education and Industry Working Together for a Common Goal.'

"We are proud to be partners with General Dynamics in the growth and development of the quality assurance profession and in the growth and development of this community," his letter concluded.

GD World

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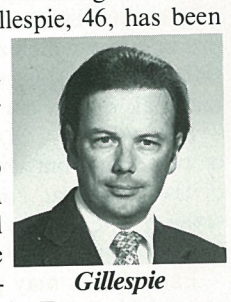
General Dynamics Corporation
Pierre Laclede Center, St. Louis, Mo. 63105
Manager of Internal Communication
G. Alexander Smith

Gillespie Named Vice President At Electronics

Donald L. Gillespie has been named Vice President — Marketing for Electronics Division. Gillespie, 46, has been serving as Director — Cruise Missile Marketing for Convair Division.



Gillespie

Gillespie came to General Dynamics in 1977 from Thiokol Corporation, where he had been Marketing Manager for Air Force programs. Before assuming the cruise missile post, he had been Director of International Marketing for Convair.

Electronics is a major manufacturer of automatic test equipment and instrumented range systems for the Department of Defense.

Convair's Program For Cost Reduction Makes Good Start

Convair's savings in the cost reduction program were nearly twice the first quarter goals, according to J. M. Ibarra Jr., Cost Reduction/Value Control Administrator for the division. During the first three months of 1982, the savings to the company came to more than $31.8 million, compared to the goal of $17.1 million.

Setting the pace during the first quarter were Convair's Space Programs, which were credited with net savings of $3.9 million in the quarter, surpassing their total goal for the year of $1.5 million.

Other departments also scored heavily in the quarter. Operations reached nearly half of its annual goal of $35.6 million, and the Material Department was credited with $10.5 million toward its annual goal of $18.1 million. Finance has also passed the half-way mark, showing savings of $262,100 against an annual goal of $355,900.

Ibarra also reported that the Employee Suggestion program was off to a good start for 1982, with first quarter savings of $209,400 against a goal of $987,400 for the year. He compared these savings with the $174,100 registered in the first quarter of 1981.

Stromberg, TRW Sign Letter of Intent

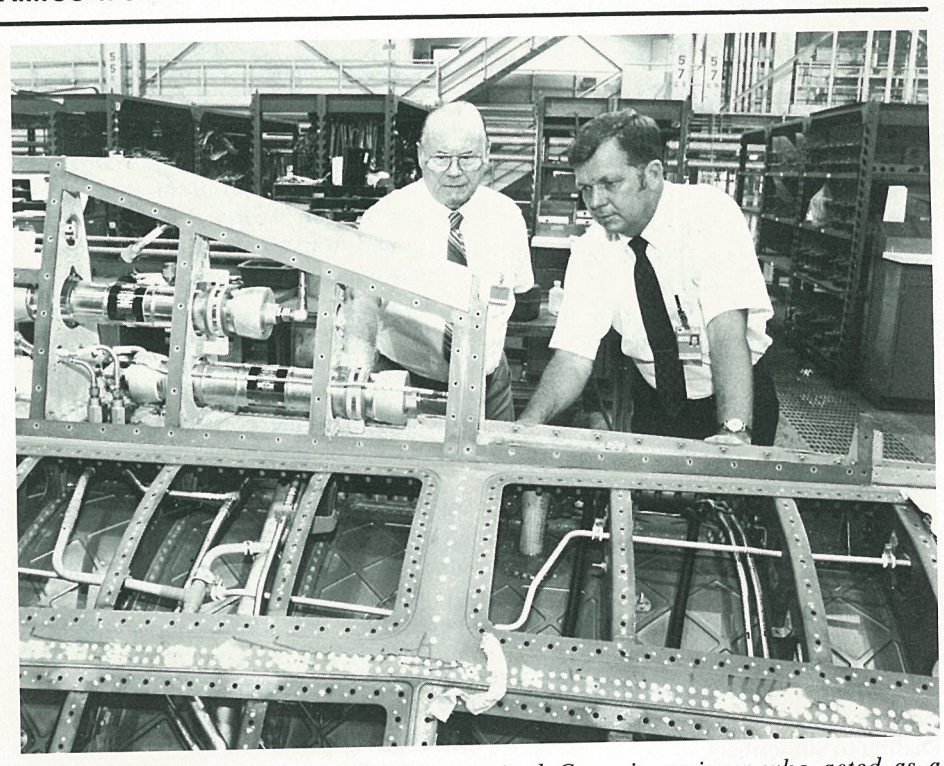
Stromberg-Carlson Corp. has signed a letter of intent with TRW Inc., to provide on-going product support to TRW Vidar digital telephone switch customers.

TRW has announced it will end production of digital telephone switching equipment, a business it entered in 1975 when it acquired Vidar Corp. TRW currently has about 70 digital switch customers in more than 200 locations.

Wynne Promoted To Vice President At Land Systems

Michael W. Wynne has been promoted to Vice President, Contracts & Estimating, for General Dynamics Land Systems Division. Formerly, he was GD Corporate Manager, Pricing, in St. Louis.

Wynne, 37, is a graduate of the U.S. Military Academy and received a Master of Business Administration degree from the University of Colorado and a Master of Science degree in electrical engineering from the Air Force Institute of Technology.



Proven Seal. *Jim Spurgeon (left), a retired Convair engineer who acted as a consultant to Fort Worth, and Fred W. Auld of Fort Worth inspect the F-16 fuel tanks that were assembled using the adhesive sealing system. Use of the 20-year-old sealing system has demonstrated a 25 percent reduction in costs compared with the sealing systems presently used on other Air Force aircraft.*

ScotchWeld Adhesive Technique Used in Sealing F-16 Fuel Tanks

A fuel tank sealing system that was used at Convair more than two decades ago has been adapted for Fort Worth's F-16 and is now being flight tested at Edwards AFB, Calif.

"To date, the fuel system has not shown any signs of leaking," said Fred Auld, Program Manager for the new system.

The Falcon test aircraft has so far accumulated more than 175 hours of flight time with the sealing system, and use of the 20-year-old ScotchWeld adhesive sealing system may be adapted for future aircraft delivered to the U.S. Air Force.

The adhesive fuel tank sealing system has demonstrated a 25 percent reduction of fuel tank costs compared with the polysulfide sealing system currently being used in F-16 production. Projected life cycle costs are also significantly lower.

The adhesive sealing system was initially used on Convair's F-102 and F-106 fighters and CV-880 and CV-990 transports.

Air Force records show the F-102 Delta Dagger and F-106 Delta Dart, with more than 25 years of service, had far fewer fuel-tank related maintenance problems than other Air Force aircraft, including bombers, transports and fighters, which used the polysulfide sealant.

Convair's proven sealing system is being examined on modern fighters under an Air Force Materials Laboratory Manufacturing Technology contract, according to Auld. The division was aided by the Air Force Acquisition Logistics Division (AFALD) at Wright Patterson AFB, Ohio, and Jim Spurgeon, a retired Convair engineer, who was a key figure in the sealant's use on the F-102s and F-106s, and is now a consultant.

Polysulfide, a rubber-like substance, is applied to tank seams and over fasteners and joints inside the tanks. The ScotchWeld system uses an adhesive film which is applied to the seams and is then cured in an oven for one hour at 320 degrees.

"The challenge was to adapt this sealing system, used in the 1950s and 1960s, to the way we design and build aircraft today," Auld said. "One of the major differences was that the adhesive system used by Convair 20 years ago was principally for wing tanks, while on the F-16, it was used for the center and aft fuselage tanks. The wings were relatively flat and simple, while the fuselage components presented a far more complex application."

Standard F-16 production parts were used, but a special adhesive primer had to be applied on all tank interior surfaces to protect the bonding surfaces from contamination during assembly operations and to prevent in-service corrosion on areas exposed to fuel.

All assembly operations were done in the normal F-16 production areas, using production aircraft assemblers, fixtures and equipment.

Dr. Jerry Crane, Assistant Deputy for Engineering and Evaluation for the AFALD, said the program "has been an outstanding success. It has answered every question that we posed and has provided sufficient information and confidence for the Air Force Logistics Command to select this sealing system for its C-130 wing modification program and to promote its use in future acquisition programs."

Harman, Onorato Honored by YWCA For Achievements

Bev Harman from Convair and Belle Onorato from Electronics have been recognized for their accomplishments in the business world. They received the awards at a Tribute to Women in Industry luncheon sponsored by the YWCA on May 6th. The luncheon, part of a national YWCA program, was sponsored by the San Diego County YWCA to recognize women who have made significant contributions in managerial, executive or professional positions.

Harman, Chief of Material Control at Convair, has been with the company since 1967 and has held a wide variety of assignments. Currently, she is in charge of ordering and tracking all inventory material for the division.

Onorato is Manager of Employee Relations for Electronics. She is one of the few women in the San Diego area who has labor relations responsibility. She served as Manager of Employment and Equal Employment Opportunity.

Fort Worth Division Saves $47.6 Million With Cost Reduction

The Cost Reduction/Value Control program at Fort Worth for the first three months of this year reported a savings of $47.6 million, 35 percent higher than had been projected.

John D. Jackson, Manager of the program, said the bulk of the savings, $29.5 million, resulted from a lower procurement cost of materials. Savings from suggestions made by employees during the quarter amounted to $1.7 million, and productivity improvement savings totaled $3.9 million.

Stromberg-Carlson System Cut Over On American Samoa

Stromberg-Carlson Corp. cut over a System Century Operator Position System (SCOPS) on May 7th for the Government of American Samoa.

The SCOPS, with five operator positions and a supervisor position, serves the entire Pacific island complex which consists of five exchanges and more than 7,000 subscribers.

Over the past two years, Stromberg-Carlson has placed in service for the Government of Samoa a 1,500-line DCO system in Tafuna, a 1,500-line DCO system in Leone, a 3,300-line DCO system in Fagatogo as well as a 700-line Digital Mobile Office system. The Fagatogo system is an international network switch designed by Stromberg-Carlson which provides International Direct Distance Dialing to subscribers.

The network on American Samoa also has a System Century Centralized Maintenance and Administration Center and a customer billing system.

SCOPS automates operator functions by displaying call information on video displays so operators can direct routing, call handling and billing by using a keyboard on the terminal.

Volume Purchasing Agreements Save GD Millions

General Dynamics operations are realizing substantial savings from a corporate-wide purchasing program that covers materials from work gloves to aircraft parts and from electronic semiconductors to reproduction equipment.

Last year alone, the Corporate Material Agreement (CMA) Program saved more than $41.3 million on purchases that totaled $151.1 million because under the program the corporation can take advantage of volume discounts.

Everett C. Gray, Corporate Director of Material, said the CMA program has grown tenfold since 1971 when purchases under the program totaled $14.5 million. At present, CMAs account for almost 9 percent of the corporation's domestic purchases.

"The CMA Program provides us with an opportunity to obtain economies through quantity purchases, standardization of material requirements and reduction of administrative costs," says Ken Stewart, Chief of Procurement at Fort Worth and the division's CMA Coordinator.

"While the CMA Program certainly helps the larger divisions, it really is a greater help to the smaller divisions and subsidiaries — where Fort Worth may have large quantity needs for a particular item, and the smaller division may need less, by purchasing through the CMA program, the smaller division benefits from the large volume price."

J. D. Martin, Corporate Manager of Procurement, said the program showed increases in both purchases and savings in 1981, bettering records set in 1980. In 1981 there was an increase of 15 percent in commitments and three percent in savings. The program goal for 1982 is a 10 percent increase in savings.

CMAs are mutual understandings between General Dynamics and suppliers which establish terms, conditions and prices under which all divisions and subsidiaries of the corporation may purchase materials or services from the supplier.

Normally, a CMA is written for one or two years, but with the recent signing of the multiyear contract for the F-16, some of the CMAs have been amended to run through 1984.

Each CMA may provide for the purchase of a single item or many items or services. For example, one of the CMAs that was negotiated between Fort Worth and a supplier contains bid prices for more than 400 different part numbers.

There are currently 281 separate CMAs that can be used by divisional and subsidiary purchasing departments.

"In addition to saving our corporation money, the CMAs have proven helpful to our suppliers," said Ralph Eckert, Electronics Purchasing Agent at Fort Worth.

"They provide the supplier with an accurate projection of the needs of General Dynamics for particular products or services, and the opportunity for them to plan their own production more efficiently. In addition, a CMA gives suppliers the opportunity to call on all the divisions in the corporation — opening additional markets for their products. The program benefits both the buyer and the seller," he said.

Com Dev Facility

General Dynamics Communications Company is building a new $4 million facility for its Com Dev subsidiary in Sarasota, Fla. The combined office and manufacturing operation will total more than 70,000 square feet and will consolidate Com Dev operations presently at four separate locations.

Lewis Reports Record Backlog Of $13 Billion

Continued from Page 1

this year with the Navy, which has stated it has a requirement for 4,000 Tomahawks to be installed in submarines and surface ships. The U.S. Air Force plans call for 560 ground-launched cruise missiles for deployment in Europe.

"A new variant of the Tomahawk, the Medium Range Air-to-Surface Missile, is in its full scale development stage under a new contract. This version, which would provide attack missiles for carriage by aircraft of the Navy and Air Force, could result in a production program larger than the other two combined.

"Our other defense programs continue to go well. Pomona, with its impressive inventory of programs for the Army, Navy and Air Force, continues to set new sales and earnings records, year after year.

"Over the past decade, we have tried very hard to increase the percentage of our nongovernment business," Lewis continued. "Our commercial sales have increased, but the relative percentage has gone down, primarily as a result of the very major increase in our sales in the defense sector, but also as a result of the seriously depressed economy.

"We continue to provide research and development and facilities investments in all of the commercial operations to insure their long-term viability and profitability in an improved economy. We intend to continue our efforts to build a strong balance in commercial and government work. Meanwhile, our present lines of high priority government programs and significant operations of our basic resources, telecommunications and information systems give us a strong position for the long term."

Lewis said that at the end of the first quarter, the total funded backlog was $13 billion, the highest in the corporation's history.

"We have never had more challenges, nor more opportunities than we have at the present time," Lewis said. "I believe that the 88,000 men and women of General Dynamics are up to those challenges and are determined to capitalize on those opportunities."

GD Flashback

Consolidated's PT-1 Husky

The PT-1 Husky Trainer Started Convair's Success

Convair has built a variety of fast and powerful aircraft, but the plane that got the whole thing started 57 years ago was a gentle and ungainly looking biplane.

The company in 1925 was known as the Consolidated Aircraft Corp., and the biplane which started the company on the road to success was the PT-1 Army trainer.

The Consolidated PT-1 has been called one of the most famous primary trainers of all time. When it joined the Army in early 1925, it signaled the end of the venerable Curtiss JN-4D, which gained immortality as the Curtiss 'Jenny.'

The PT-1 originally was used exclusively by the Army Air Service. But in the fall of 1925, Consolidated came out with the NY-1, a slightly modified PT-1 with a new engine, and the Navy then had a Consolidated trainer of its own.

Named the 'Husky,' the fabric-covered biplane in its PT and NY versions was the main primary trainer for the Army and Navy from 1925 to 1937.

The aircraft pioneer who guided the destiny of the Husky was Maj. Reuben H. Fleet. He formed the Consolidated Aircraft Corp., on May 29, 1923, by buying and consolidating the assets of two ailing companies, Gallaudet Aircraft Co., of Greenwich, R.I., and Dayton-Wright Airplane Co., of Dayton, Ohio. His new headquarters were set up in the Gallaudet plant at East Greenwich.

From Dayton-Wright, Fleet got the rights to all designs and services of Col. Virginius E. Clark, who had designed the TW-3 'Chummy' primary trainer. Fleet also got an uncompleted contract with the Army for construction of 20 of these trainers.

Although the TW-3 was Consolidated's first sales venture, Clark came up with the new company's first original product when he designed a new plane, the improved PT-1 trainer. In 1924, Fleet contracted with the Army for 50 PT-1s, and the Army soon followed with an order for 100 more. The boom became so extensive that Fleet moved his company to Buffalo, N.Y. later that year to utilize a larger existing factory.

The success of the PT-1 was due mainly to Fleet's insistence on simplified design and rugged construction. It was a lean, stark and rather ugly airplane, but it was just about perfect for its job as a primary trainer. By the end of 1926, it had logged more than 30,000 hours and trained more than 600 students without a single serious accident.

The PT-1 had a wingspan of 34 feet, 9 inches and length of 27 feet, 8 inches. It was powered by a 'Vee-Type' water cooled Wright-Hisso Model E engine of 180 horsepower, giving it a range of 350 miles, a maximum speed of 92 miles an hour and a cruise speed of 79. It landed at a slow 47 miles an hour, making it an ideal plane for a fledgling pilot.

The pilot and the instructor sat in tandem cockpits, which were a considerable improvement over the awkward side-by-side seating in the single cockpit of the predecessor TW-3.

The NY-1 for the Navy was powered with a 200-horsepower Wright 'Whirlwind' J-4 engine because of the Navy's preference for the air-cooled radial engine. The NY-1 also had a slightly different tail and, with the installation of a central pontoon and wing-tip floats, was used extensively as a seaplane trainer.

In its Army geneology, the PT-1 was powered with the Wright-Hisso engine, and when one plane was updated with a Wright J-5 engine, it became the XPT-2. When this same plane was given a set of different wings, it was redesignated the XPT-3. In effect, the production PT-3 of 1928 was basically only a modified and modernized PT-1.

It was in a Consolidated NY-2 that Army Air Corps Lt. James H. Doolittle — in a canvas-hooded cockpit with special radio gear — made the world's first fully blind flight on Sept. 24, 1929 from Mitchel Field, N.Y.

Between 1924 and 1930, more than 800 PTs and NYs were built; the customers included six foreign countries.Before long, a whole generation of pilots had been trained in the docile and forgiving Husky.

GD World

Vol. 12 No. 6 June 1982

United Technologies to Purchase Stromberg-Carlson Units, GDCC

General Dynamics and United Technologies Corporation of Hartford, Conn., announced they have reached an agreement in principle under which General Dynamics will sell General Dynamics Communications Company (GDCC) and two of the major operating units of the Stromberg-Carlson Corporation subsidiary to United Technologies. It is anticipated that the sale will be finalized by the end of July 1982 for approximately $100 million in cash. General Dynamics expects that this transaction will have little or no impact on its balance sheet.

GDCC, headquartered in St. Louis, is a leading supplier of telecommunications equipment and services for the business interconnect market, with 51 offices in the U.S. and approximately 1,300 employees.

The Stromberg-Carlson units being sold to United Technologies produce the advanced System Century lines of Digital Central Office and Digital Branch Exchange switching equipment. These operations involve approximately 2,700 employees, of which approximately 2,000 are located in Orlando and Lake Mary, Fla. The remainder are located at Ardmore, Okla., Rochester, N.Y., and at a number of field offices.

The total sales of GDCC and the Stromberg-Carlson units involved in the transaction were about $180 million in 1981.

Upon completion of the agreement, operations acquired by United Technologies will become part of the corporation's Building Automation, Inc., subsidiary.

Building Automation, which is part of the Building Systems Sector of United Technologies, provides electronic systems that integrate, manage and control the operation and energy use of equipment in new and existing commercial buildings.

The agreement does not include Stromberg-Carlson's telephone instrument manufacturing operation at Charlottesville, Va., nor American Telecommunications Corporation (ATC) headquartered in El Monte, Calif. The combined sales of Charlottesville and ATC in 1981 were approximately $125 million.

United Technologies is a developer and builder of high technology products for worldwide commercial and government markets. Its most familiar products are Pratt & Whitney jet engines for aircraft, Carrier air conditioners, Otis elevators and escalators, Sikorsky helicopters, and Mostek semiconductors.

Secretary Weinberger Tours M1 Tank Production Facility

Secretary of Defense Caspar W. Weinberger reviewed the production operations for the U.S. Army's M1 main battle tank during a tour of the Detroit Arsenal Tank Plant on May 24th.

He made a personal inspection of various departments of the plant, which is operated by General Dynamics Land Systems Division.

The Secretary was accompanied by Maj. Gen. Oscar Decker, Commanding Officer, U.S. Army Tank Automotive Command and Maj. Gen. Duard D. Ball, M1 Tank Program Manager, and Oliver C. Boileau, President of General Dynamics.

Weinberger got a close look at an M1 by climbing inside the tank's turret and occasionally stopping to talk to employees and asking questions pertaining to operations in their areas.

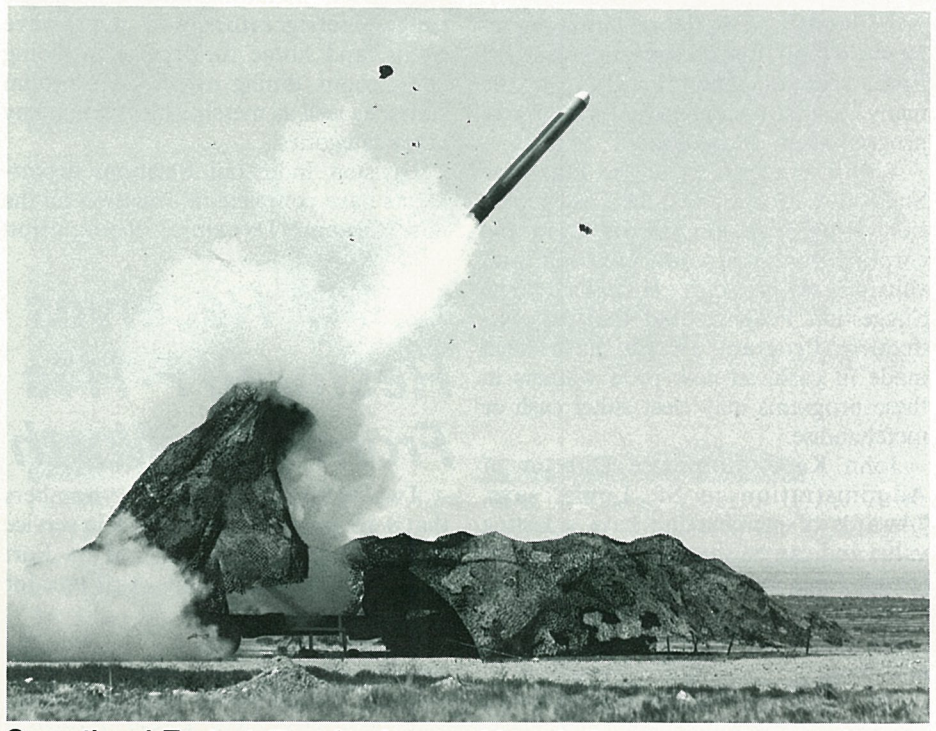
Lt. Col. Jerry H. Domask, Commander of the Detroit Arsenal Tank Plant, told Weinberger that he was seeing a "highly skilled and dedicated workforce — real professionals". Later, Domask, said "When Mr. Weinberger left, I felt convinced that he was well satisfied with the people he met and with the quality of the tanks we build."

At a press conference in downtown Detroit later that morning, Weinberger was asked about quality problems with the M1 and said, "I think those are pretty well behind us, and now it is a matter of keeping up a steady rate of production."

Weinberger also said he was "very encouraged by the improvements that I saw . . . and also by the general morale and appearance of the factory itself."

Photo by Joe Kennedy

Close Inspection. *Secretary of Defense Caspar W. Weinberger climbs into an M1 tank at the Detroit Arsenal Tank Plant during his recent review of the plant's operations and facilities.*



Operational Test. *A Tomahawk ground-launched cruise missile soars from its camouflaged transporter-erector-launcher, signalling the start of U.S. Air Force operational testing for the Convair-built system.*

Tomahawk Cruise Missiles Begin USAF, Navy Operational Testing

Two Convair Tomahawk cruise missiles — one launched from beneath the sea and another from its mobile ground launcher — signaled the start last month of Navy and Air Force operational testing.

On May 21st, the U.S. Navy launched a conventional land-attack Tomahawk from a nuclear-attack submarine cruising off the California coast. Two days earlier at the Dugway Proving Ground in Utah, the Air Force conducted the first in a series of eight operational test and evaluation flight demonstrations of the ground launched cruise missile (GLCM).

The sea-launched cruise missile (SLCM), launched from a torpedo tube of the USS *Guitarro* (SSN 665), broached the surface of the water and transitioned to cruise flight as planned. Powered by its air-breathing turbofan engine, the missile navigated a complex mission over water, made landfall and flew a fully guided land-attack mission to the target area on the Tonapah Test Range in Nevada.

The *Guitarro* launch was in support of the operational evaluation of the submarine-launched Tomahawk conventional land-attack cruise missile weapons system. Tomahawk SLCMs (conventional land-attack and anti-ship variants) now in production at Convair will enter the operational inventory later this year.

The Air Force GLCM was successfully launched May 19th from a camouflaged transporter erector launcher (TEL) on the Dugway range in western Utah. On hand for the test were a number of media representatives from the television networks, wire services, trade journals and local press.

After launch, the GLCM cruised over an intricate course on the Utah Test and Training Range and, using its terrain-following capabilities, made two passes over a simulated ground target on the range.

Upon completion of the nearly two hour, 800-mile test, a parachute recovery system on the missile was activated to bring the missile safely to the ground.

Continued on Page 4

Michigan Initial Sea Trials Go Very Smoothly

Success. That word best characterizes the initial sea trials of the nation's second Ohio-class submarine, *Michigan*.

Tugs nudged the powerful sub into her berth recently at Electric Boat, capping two-and-a-half days of putting her through her paces in the Atlantic.

A U.S. Navy crew and a 64-member Electric Boat group of test technicians, engineers and employees, were aboard for the trials.

Directing the trials was Adm. Kinnaird McKee, Director of the Naval Nuclear Propulsion Program. Other Navy officials aboard included: Rear Admirals Harold Young and Powell Carter, Groton Supervisor of Shipbuilding and Submarine Group II Commander, respectively.

Also aboard was EB General Manager Fritz Tovar, who was making his first sea trial trip since assuming his post last November, and Curtis Shellman, the shipyard's Assistant General Manager-Operations.

"I was tremendously impressed with the ship, the Navy crew and the EB contingent," said Tovar. "Everything went very smoothly."

Michigan's departure on her trials didn't create quite the stir that the lead ship, *Ohio,* did about a year ago. Nevertheless, knots of people waved best wishes from the banks of the Thames River as the 560-foot, 18,750-ton vessel glided down the Thames River heading for sea.

Michigan was launched April 26, 1980 and is scheduled for delivery later this year. The division currently has seven sister ships under construction.

Electric Boat delivered USS *Ohio* in October 1981.

* * *

It's a Long Trip In Barren Utah To Witness Test

By Jack Isabel

The Western Region Manager of News and Information, Jack Isabel, supported the Joint Cruise Missiles Project Office when more than 40 members of the press were invited to witness a recent test of the ground-launched cruise missile in Utah. Here is his report:

The Tomahawk was ready, but most of us were beginning to question the wisdom of starting out on the long trek to Dugway Proving Ground to cover the test of the U.S. Air Force's ground-launched cruise missile.

Awakening to loud claps of thunder,

Continued on Page 4

Recognition Program Awards Prizes of Valuable Merchandise

General Dynamics Recognition Program merchandise awards are available to employees who are cited by their divisions through the Extraordinary Achievement Program for salaried employees, the Employee Suggestion Program or the many Cost Reduction and sales incentives programs in the corporation.

With the exception of the Employee Suggestion Program and the Cost Reduction Programs, all awards from the corporation to employees are made with valuable merchandise. Historically, the Suggestion Program and the Cost Reduction Program awards have been made in cash, so now prize winners in these programs may elect either cash or merchandise.

John Kane, Corporate Director of Administration in St. Louis, says, "Awards of merchandise have a lasting value and can be shared with family and friends for a long time. You can enjoy a prize such as a new television set, a home video system or a new gas grill for years and years.

"In addition, new tax laws allow a person to receive merchandise free from the Federal income tax up to a gift value of $1,600, while cash awards must be discounted for taxes before they are issued," he says.

Under the new program, an employee receiving an award is given a merchandise prize or credit points to use in selecting merchandise from a catalogue.

Employees can now acquire men's and women's watches and jewelry; clothing; luggage; sporting equipment; home electronics and video equipment; tools; appliances, including electric and gas ranges, refrigerators and microwave ovens, and home furnishings including living room, dining room and bedroom suites, as well as merchandise from many other categories.

Division Industrial Relations departments have complete information on the new General Dynamics Recognition Program.

Detroit Plant Beats Schedule Delivering Tanks

One M1 and three M60A3 main battle tanks were delivered by Land Systems to the U.S. Army at the Detroit Arsenal Tank Plant on May 28th — three days ahead of contract schedule.

"This is the first time in recent memory that we delivered tanks ahead of schedule," said Plant Manager J. S. Acharya during a brief ceremony marking the occasion.

Oliver C. Boileau, President of General Dynamics, was presented a plaque commemorating the event. The plaque contained copies of the M1 and M60 Department of Defense Form 250 acceptance invoices superimposed on one of Boileau's first letters to the employees of the division after it was acquired by General Dynamics in March. The subject of that letter, GDLS Number One Objective, said the major task before the division is "to meet and maintain the production schedule."

College Scholarships Awarded to Students

Four high school seniors have been named winners of 1982 General Dynamics-National Merit Scholarships for four years of college.

The winners are: Lucia K. Dale, daughter of Louis A. Dale who works in the Logistics department at Fort Worth; Andrew B. Johnson, son of Cecil F. Johnson, a Test Engineer at Fort Worth; Vernon A. Lee, son of Dr. Vernon A. Lee, Director, F-16 Israel Program at Fort Worth, and David R. Wiley, son of Aubrey E. Wiley, Logistics Administrative Analyst, Senior, of Fort Worth.

Each year, General Dynamics sponsors four National Merit Scholarships for outstanding students who are children of employees.

High school sophomores who are interested in competing for a General Dynamics-National Merit Scholarship should take the Preliminary Scholastic Aptitude Test/National Merit Scholarship Qualifying Test that is given at high schools across the country in October for students in their junior year.

USAF Receives Restored F-111s From Fort Worth

Two USAF F-111 fighter-bombers that were severely damaged by in-service accidents have been restored at Fort Worth and returned to the Air Force for further operational use.

The F-111A and the F-111E were the second and third F-111s that have been restored by Fort Worth under a contract with the U.S. Air Force Logistics Command.

Five more F-111s are currently being restored in the program that F-111 Program Director Sterling Starr says is "an important one, because the U.S. Air Force is getting fully operational aircraft for a small portion of what new ones would cost. It's important to the Air Force because it returns aircraft of operational capability to service at the lowest possible cost."

The F-111A that was reworked was damaged early last year by an in-flight fire in the main wheel well. The aircraft was landed safely, and investigation later found that the fire had been caused by an electrical short circuit.

Structural damage was repaired and all necessary depot level time compliance technical orders were carried out.

Damage to the F-111E was caused when a high pressure air bottle exploded while the aircraft was parked and unattended. The bulk of the damage was in the aft bulkhead of the crew module and in the fuel bulkhead. Repairs were made and depot maintenance was also completed.

Veliotis Requests Early Retirement

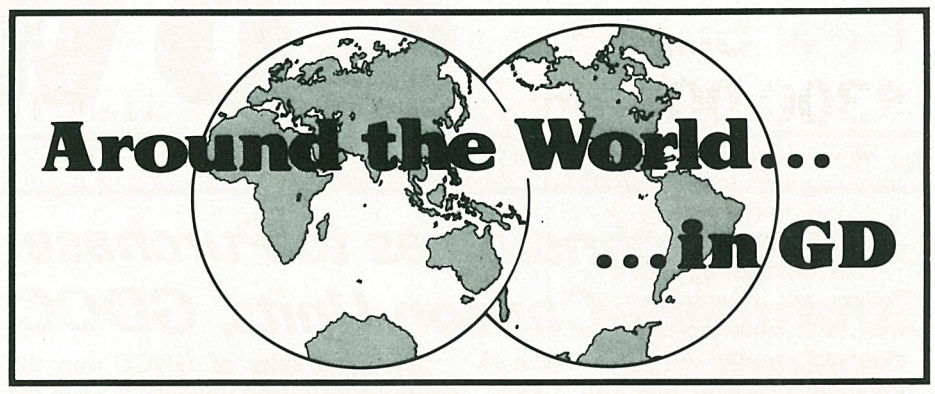
P. Takis Veliotis has requested early retirement from General Dynamics where he has been serving as Executive Vice President-Marine and International Operations and as a member of the Board of Directors.

Veliotis joined General Dynamics as General Manager of Quincy Shipbuilding in 1973 and became General Manager of Electric Boat in 1977. He has served as Executive Vice President-Marine and International Operations since November 1981.

"Throughout these years, Mr. Veliotis has been a very valued member of the General Dynamics management team," said David S. Lewis, Chairman and Chief Executive Officer.

"In early 1981, Mr. Veliotis had stated his desire to retire in order to devote substantially full time to the management of his family's business affairs," Lewis said. "However, he agreed to stay in his key management position until Electric Boat's commitment to the Navy to deliver the first Trident and six SSN 688-class submarines in 1981 was met.

"Under Mr. Veliotis' dedicated leadership, the Electric Boat team met all of its 1981 delivery schedules in an outstanding manner," Lewis said. "In recent months, he has been concentrating on the company's international activities but he has found that he cannot meet his obligations to his family's business with the heavy travel schedule necessary for the development of General Dynamics' international operations."



CHQ: *Fred L. Landgraf* transferred from Fort Worth and was promoted to Corporate Manager, Pricing . . . *Gus Noll III* transferred from Fort Worth and was promoted to Corporate Manager, Contracts . . . *Timothy Fitzgerald* was promoted to Corporate Manager, Financial Analysis . . . *John F. Langer* to Manager, Corporate Flight Department . . . *Sally P. Herr* joined as Corporate Senior Consolidation Accountant.

Fort Worth: *S. W. Barter* was promoted to Engineering Test Pilot . . . *M. D. Bates, S. Y. Brazzell* and *D. J. Bruce* to Engineering Group Supervisor . . . *S. R. Bates* and *P. D. Nixon* to Logistics Engineer . . . *T. B. Bertel* to Industrial Relations Representative . . . *J. R. Blackburn, D. H. Francis, C. L. Gonzales* and *L. Nabers* to Production Specialist . . . *P. W. Bradley, J. Fitzpatrick* and *L. F. Gray* to Logistics Supervisor . . . *R. T. Bridges* to Contract Representative . . . *E. L. Brooks* to Engineer, Senior . . . *W. B. Cargill Jr.* to Tool Manufacturing General Foreman . . . *J. F. Ezell* to Project Manager . . . *J. K. Feild* to Contract Administrator, Senior . . . *D. H. Jaggers* to Engineering Specialist . . . *T. E. Kinsella* to Manufacturing Technology Engineer Senior . . . *B. I. Lindsey* to Manufacturing Control Supervisor . . . *D. A. McAuley* to Associate Counsel . . . *J. P. McNally* to Field Service Engineer . . . *M. W. Money* to Financial Analyst Senior . . . *R. J. Phipps* to Tooling Supervisor . . . *D. W. Tucker* and *S. R. Wagner* to Manufacturing Control General Supervisor.

Pomona: *J. S. Gladstone* and *L. C. Cantwell* were promoted to Design Engineer, Senior . . . *M. D. Harbison* to Manager, Quality Assurance . . . *B. A. Williams* to Material Cost Analyst . . . *R. L. Angelo* to Project Administrator . . . *A. Calomino* and *E. I. Tinkman* to Chief of Estimating . . . *L. E. Dorsey* to Quality Assurance Project Administrator . . . *T. R. Feulner* to Manufacturing Development Specialist . . . *H. H. Grogan* to Design Specialist . . . *B. A. Halama* to Manufacturing Engineer . . . *C. A. Hartline* to Material Control Supervisor . . . *P. D. Miller, R. C. Woodruff* and *R. L. Moore* to Manager of Estimating . . . *W. H. Neal* to Director of Manufacturing . . . *F. S. Smith* to Manufacturing Engineer, Senior.

DSD: *Donald C. Bowen* transferred from Fort Worth to St. Louis as Technical Buyer . . . *Bernard J. Breen* transferred from St. Louis to Eastern Center and was promoted to Center Director . . . *Ron E. August* and *David F. Jenkins* transferred from Western Center and were promoted to Corporate-wide Applications Specialist.

Electric Boat: *John Azzinaro* was promoted to Superintendent . . . *Louis Gencarella* to General Foreman . . . *Jeffrey Shafer* to Supervisor, Quality Engineering . . . *James Londregan* to Chief of Engineering . . . *Francis St. Marie* to Assistant Chief Test Engineer . . . At Quonset Point, *James Nonnan* to Senior Supervisor, Quality Assurance . . . *Donna Patterson* to Supervisor, Compensation and Employee Services . . . *Emil Silveria* and *Bruce Lawton* to Superintendent . . . *Joseph Baich* to General Foreman . . . *Leigh Gardiner* to Group Trade Planner.

Stromberg-Carlson: *Earl A. Ballengee Jr.* was promoted to Senior Customer Service Engineer . . . *Richard Scott* to Director, Engineering . . . *Ronald W. Christian* to Manager, Engineering.

Convair: *Thomas L. Ashcraft* and *Tommy R. Maxwell* were promoted to Operations Supervisor-Manufacturing . . . *Peggy J. Bullock* to Financial Analyst, Senior . . . *Raymond A. Calen* to Chief, Facility Planning . . . *Christine A. Clark* to Accounting Specialist . . . *Richard B. Ponse* to Operations Supervisor-Facility Planning . . . *Ronald J. Rousey* and *Dean L. Weelborg* to Operations General Supervisor-Manufacturing . . . *Zachary K. Abshear* and *Thomas L. Webb* to Operations Supervisor-Manufacturing Control . . . *William K. Chan* to Tooling Supervisor . . . *Michael Davis* to Engineering Specialist . . . *Clarence S. Dickerson Jr.,* to Manager, Manufacturing Engineering . . . *Albert W. A. Eaton* to Project Engineer, Senior . . . *James M. Hagin* to Engineering Specialist-Plant Engineering . . . *Harold K. Hultner* to Engineering Chief . . . *Gilbert L. Olson Jr.* to Chief Finance . . . *Robert C. Seton* to Cost Development Engineer, Senior.

Electronics: *Phil F. Burksaze* was promoted to Senior Administrative Engineer . . . *James E. Flynn* to Program Manager.

DatagraphiX: *An C. Wilson* was promoted to Group Leader-Purchasing Administration.

Land Systems: *J. B. Koul* was promoted to Quality and Vendor Liaison Supervisor . . . *J. L. Brummans* to Product Design and Development Unit Supervisor . . . *W. D. Kluge* to Experimental Fabrication and Assembly Supervisor . . . *J. M. Banneste* to Product Drafting Supervisor . . . *P. N. Patel* to Program/Project Administrator . . . *M. D. Zambelli* to Material Control Supervisor . . . *D. E. Kleist* to Value Design Engineer . . . *L. T. Wilk* to Engineering Change Coordinator . . . *N. C. Andrews* to Parts Follow-up Supervisor . . . *J. J. Scarcelli* to Final Acceptance and Inspection Foreman . . . *C. J. Wydrynski* to Industrial Engineering/Sub-Contractor Proposals Auditor . . . *J. M. Sluka III* to Defense Accounting Regulations Analyst . . . *J. T. Wingert* to Product Design and Development Supervisor.

Savings and Stock Investment Values

	April 1980	April 1981	April 1982
Salaried			
Government Bonds	$ 2.4067	$ 2.5671	$ 2.9173
Diversified Portfolio	1.6709	2.1570	2.0016
Fixed Income	1.0799	1.1954	1.3292
Hourly			
Government Bonds	2.4047	2.5647	2.9171
Diversified Portfolio	1.7044	2.2049	2.0431
GD Stock	$33.8750*	$34.0000	$28.7500

* Reflects 2 for 1 stock split of November 1980.

New Supplier Bidding To Save $300,000 on Each F-16 Falcon

New bidding by 150 major F-16 program suppliers to Fort Worth will result in savings to the U.S. Air Force of more than $300,000 for each Falcon.

These savings, figured in January 1980 dollars, are in addition to those which will result from the recently announced multiyear contract between the U.S. Air Force and General Dynamics (See *GD World*, February 1982).

Norman E. Day, Vice President-Material at Fort Worth, said the new bidding or recompetition was possible because of the high interest by industry in participating in the long-term F-16 production program.

"In 1975, we had fixed price options for the original 998 aircraft that were ordered by USAF and the four European Participating Group countries," he said.

"We had a stable program and continued to deliver within the original option prices, but by 1980 it became clear that for new programs which fell outside the original options we were not maintaining the sharp competitive edge that we needed."

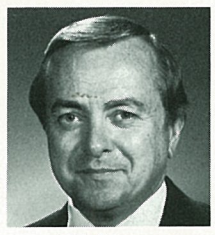
With prospects of selling F-16s to additional nations, and in some cases under highly competitive conditions, Day said "a conscious decision was made to recompete, if necessary, essentially everything on the aircraft."

Although the multiyear F-16 contract was still in the discussion stages, the recompetition program was structured in 1980 with provisions for future multiyear contracting. "As a result, we were able to submit multiyear proposals to the USAF in 1981 with multiyear procurement benefits documented by negotiated subcontract costs," Day said.

Proposals for items ranging from valves and actuators to flight control computers and landing gear were obtained for 1,800 aircraft.

Dickinson Named Vice President At Land Systems

Monty W. Dickinson, Director of Manufacturing and Material Control at Pomona, has been promoted to Division Vice President-Material at the Land Systems Division.

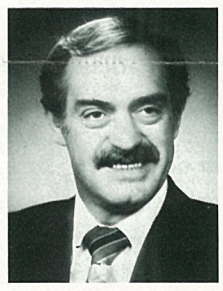


Dickinson

In his new position, Dickinson 43, will be responsible for all Land Systems Material Department activities, including: procurement, material estimating and financial control; procurement planning, subcontract management and material control, receiving and inventory.

Dickinson began his career with General Dynamics in 1960 when he joined Pomona as an Associate Manufacturing Development Engineer. After advancing through several positions of increasing importance, including Manufacturing Control General Supervisor, Chief of Manufacturing Control, and Manager of Cost Control, he was named Director of Manufacturing and Material Control in 1976.

Neu and Ewing Named to Posts At Land Systems



Neu

Ewing

Two company executives have been appointed to important management positions at General Dynamics Land Systems Division.

Jacob D. Neu, Division Vice President of Manufacturing, has been appointed to the new position of Division Vice President of Productivity; and B. Edward Ewing, Director of Production Planning and Control at Fort Worth, succeeds Neu as Division Vice President of Manufacturing.

Neu, 51, will lead Land System's high-priority program to implement new productivity improvements and procedures throughout its operations. Ewing, 37, will have responsibility for all manufacturing operations for the U.S. Army's M1 and M60A3 main battle tanks.

Ewing, a native of Jasper, Ind., joined General Dynamics in January 1981 following a 13-year career in design, material and production with International Harvester Co.

Neu joined Chrysler Missile Division in 1957 and has held a number of increasingly responsible positions including Manufacturing Manager-Detroit Arsenal Tank Plant and Manager of the Lima Army Tank Plant before being named Vice President of Manufacturing for Chrysler Defense in 1980.

GD World

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Manager of Internal Communication
G. Alexander Smith

F-16 Gun System Maintenance Trainers Delivered

The first two F-16 gun system maintenance trainers have been delivered by Fort Worth to the U.S. Air Force.

One of the trainers will be used at Hahn AB, West Germany; the second trainer is being shipped to Shaw AFB, S.C.

In using the trainers, maintenance crews will be instructed in correct methods and procedures for keeping a gun system operational without removing Falcons from flying status.

Five additional gun trainers are scheduled to be delivered to the USAF later this year. The gun system training device operates exactly the same way the actual gun does, except that live ammunition is not used and the firing rate is reduced to 400 rounds per minute.

The gun system, one of several training devices manufactured at Fort Worth, uses many common parts produced for the F-16.

Familiarization Briefing. *Rear Adm. Ming E. Chang, Director of the Tactical Air/Surface and Electronic Warfare Development Division of the Office of Research, Development, Test and Evaluation of the Department of Defense, receives an explanation of the Standard Missile signal processor assembly plate from Len M. Stuessel, Product Line Director, during the admiral's recent visit to Pomona.*

1,050 Riders Can't Be Wrong —Van Tran Celebrates Five Years

There was no ice cream and cake, no celebration of any sort. And the chances are good that many of its participants didn't even realize late last month that Van Tran, Electric Boat's highly successful van pool program at Groton, was marking its fifth anniversary.

It was May 27, 1977, when eight vans carrying a total of fewer than 100 employees, took to the roads. Today, the program boasts 88 vans transporting 1,050 EB workers from 44 communities in Connecticut, Massachusetts and Rhode Island — making it the largest industrial van program in New England.

The program's 20 15-passenger vans and 68 12-passenger vans take an average of 615 vehicles off the road, saving gas, alleviating traffic congestion and parking headaches and decreasing pollution.

The vans travel an average of 30,125 miles per week which adds up to a whopping 1,446,000 miles per year. Figuring that one van replaces about seven cars, that's a savings of 624,000 gallons of gas per year — enough to run the average compact car 12,000 miles per year for 20 years.

The Van Tran commuters can cite many advantages of the program: all the vans are air conditioned; there's reduced wear and tear on their own vehicles, and parking's a snap.

Another plus: Van Tran has its own maintenance program that automatically takes care of servicing during the hours that riders are at work.

Passengers pay a fee based on mileage and split gas costs. (The longest daily round-trip run is 160 miles — from Foxboro, Mass.)The van operators, employees carefully screened for the task, have the responsibility of keeping the vans clean and keeping maintenance logs.

Van Tran's not stopping where it is now. Currently, there are 10 more vans on order, an indication that the next five years might bring even greater growth to the program.

Multiple Stinger Missile Launcher Demonstrated in U.S. Army Test

Pomona has developed a Multiple Stinger Launcher (MUSL) which utilizes an optical sight and an infrared tracking device to provide a night and inclement weather capability for the first time for Stinger.

MUSL was successfully demonstrated at Fort Bliss, Tex., resulting in the destruction of two helicopter drones. During the test, the Stingers were launched from an M-55 towed trailer.

Because of its light weight, the tactical version of the MUSL is adaptable to different types of towed, wheeled or tracked vehicles. This application of the Stinger system uses two launchers, each capable of firing four Stinger missiles against either jet or propeller-driven fixed-wing aircraft or helicopters.

The shoulder-launched version of Stinger is now in production at Pomona.

Stinger is the newest heatseeking anti-aircraft weapon produced by Pomona. An earlier version, Redeye, was deployed in the 1960s.

Minority Business Council Honors Electric Boat Effort

Electric Boat has received the "Outstanding Corporation" Award for 1981 from the Minority Input Committee of the Connecticut Minority Purchasing Council.

The award honors EB for the support it provided to minority-owned businesses in the state last year.

In a letter to Thelmus Davis, Electric Boat's Small/Minority Business Administrator, William Lytle, Committee Chairman wrote: "I congratulate you and the Electric Boat Division for the outstanding support you have provided to help us foster the growth of Connecticut's minority-owned businesses."

Lytle presented the award at the committee's annual meeting to Craig Haines, Jr., EB's Director of Purchasing.

The shipyard's purchasing department maintains an on-going project to work with minority-owned businesses: "We help them improve their quality control systems, assist them in preparing responses for bids and refer them to other General Dynamics divisions," says Davis.

Fort Worth Mechanics' Overhaul Of Forklift Gearbox Yields Savings

Mechanics at Fort Worth recently completed overhauling a 56,000-pound forklift that is used to move dies from a storage yard to the drop hammer area in the plant.

The forklift, one of two ever built, can lift and transport up to 40,000 pounds, making it one of the largest in existence.

Mechanics Jim Brock and Weldon Landers needed about two weeks to rebuild both drive gear boxes for the forklift, which was built to General Dynamics' specifications in 1956. Original blueprints were used in the rebuilding process, because no technical manual was written for the massive vehicle.

Brock, a Fort Worth employee for 33 years, said the hardest part of the job was removing the four front wheels; each of the waist-high, solid rubber tires weighs more than 1,000 pounds.

The overhaul marked the first time the forklift had been in the garage except for routine maintenance, according to Daryl Riscky, foreman of the department that repairs everything from bicycles and electric carts to trucks and a railroad locomotive.

The forklift cost $47,700 when it was purchased 26 years ago. Now, just one of the gear boxes is priced by the manufacturer at $23,600. "We were able to repair them for a lot less than that," Riscky said.

Tomahawk Operational Tests Begin

Continued from Page 1

Test crews recovered the missile and it will be refurbished for future use in the GLCM test program.

At a post-flight press briefing, Col. Don Couture, USAF GLCM Program Manager, said, "It was just a tremendous flight. It was right on track and our preliminary information shows it was very successful, just excellent. There were no systems problems," he said.

This was the fourth test of the Tomahawk GLCM and third using the operational TEL and launch control center (LCC). Convair test personnel carried out three previous launches — one from an engineering test unit and two from the operational equipment.

It's A Long Trip In Barren Utah To Witness Test

Continued from Page 1

spectacular lightning strikes, wind and heavy rain, the group of bleary-eyed newsmen nevertheless assembled before dawn for the three-hour bus ride to Dugway. Before day's end, however, crystal clear skies would prevail and Tomahawk would become the "talk of the town" following a flawless two-hour, 800-mile cruise around the Utah Test and Training Range.

The bus ride from Salt Lake City was uneventful except for the few times our progress was slowed considerably while unconcerned grazing cattle cleared the road along the way. At Dugway's main gate our party was issued gas masks and briefed on strict rules to adhere to while on site. All military and civilian personnel are required to carry gas masks as a precaution against exposure to chemical warfare materials. Another 15-minute ride and a crash course on how to properly use our newly issued equipment brought us to another security gate. Just inside was the "change house" complex — a section of which included two sheds reeking of banana oil — the ultimate test of our mask adjustments for proper seal.

Finally, more than three hours after we left Salt Lake City, we arrived at the launch site, a vast, barren flatland of sand and scrub brush. Immediately, the press area became a beehive of activity as television crews and photographers readied their equipment to capture the launch, focusing on the camouflaged transporter-erector-launcher about a mile down range. They continued to adjust their cameras even as the public address system blared the final countdown.

"Three, two, one . . . " With a whoosh, the Tomahawk exited the launch tube, its powerful booster spewing bright orange flame as it climbed quickly to cruise altitude and then out of sight. A loud cheer erupted on the press hill as the announcer broadcast, "We have a successful launch."

During its flight the missile made two low-level passes over the desert floor. Keyed by two F-4 chase aircraft, cameramen using high power lenses were able to distinguish the missile two miles distant. Most of us didn't see it. I was able to detect it on the second pass, only because the bright sun reflected off its small airframe as it climbed prior to going into recovery.

Back in Salt Lake City, local radio and television newscasts covered the successful test in detail. Morning and afternoon dailies carried stories and photos of the launch and USAF Col. Don Couture's post-flight news conference. Indeed, Tomahawk was the "talk of the town" right up until boarding a flight back to San Diego the following day.

Atlas Soars Past Its Twenty Fifth Anniversary

This month marks the Silver Anniversary of the launch of the free world's first General Dynamics-built Atlas Intercontinental ballistic missile (ICBM) from the Air Force Missile Test Center in Florida.

Twenty-five years ago an Air Force/industry team fired the first Atlas on a pioneering flight that was to set the standard for America in establishing and building a powerful ICBM force.

Today, Atlas is still being produced by Convair, but it has a different role. Although it no longer is an ICBM that once stood as a powerful deterrent unmatched in the world, the rich heritage of Atlas has evolved into recognition as an effective and reliable space booster.

One year after that historic blast off on June 11, 1957, Atlas orbited Project Score, the nation's first communications satellite that broadcast President Eisenhower's Christmas message to the world. Four years later in 1962, another Atlas poised on the same launch pad sent John Glenn into orbit around the Earth — an event that ushered in the nation's manned space era.

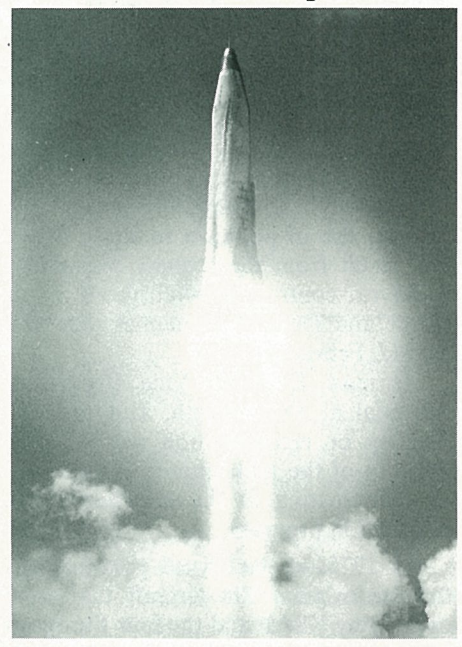
Besides Project Score and the Mercury manned orbital program, Atlas has achieved many space "firsts" during its 25 year history of unexcelled performance.

They include: the first lunar impact by an American spacecraft; first interplanetary flyby (Venus); first televised pictures of the Moon; first close-up pictures of Mars; first soft landing of an American spacecraft on the lunar surface; first mapping of Mars; and first Jupiter flyby and photos of Jupiter.

Through the years, the Atlas has been used to launch Earth orbital, geostationary and interplanetary payloads.

In combination with the Centaur high-energy upper stage, the Atlas has served as NASA's standard launch vehicle for a spectrum of scientific and commercial payloads.

With 13 additional vehicles now in production, the Atlas promises to carry its proud and successful history to 30 years and beyond as it conitnues to demonstrate the excellence of its unique capabilities.



Still Going. *Atlas 4-A clears launch pad on first flight 25 years ago this month. Atlas, originally designed as an intercontinental ballistic missile,evolved into an effective and reliable space booster and continues in production at Convair Division.*

GD Flashback

Fist-Sized Electric Motor Gave Boost to EB's Parent

When multimillionaire John Jacob Astor in 1892 ordered a new and novel tender for his large yacht, it set off a chain of newsworthy sales opportunities for the Electric Launch Co.

These sales to prominent and noteworthy customers helped build the pioneer firm, which evolved into the Electric Boat Co., a parent company of General Dynamics.

Astor had inherited the *Nourmahal,* once the world's largest steam yacht, from his father and bought the small tender, an innovative electric-powered boat, from the newly-formed electric launch manufacturing company. Astor, an amateur inventor and electrician, named his boat the *Corcyra* and immediately fell in love with the silent-running craft.

Astor's purchase touched off a stream of publicity for the new type of boat, and he was so pleased with the results that he ordered another one, a 47-foot electric launch named the *Progresso,* which he used at his summer home at Newport, R.I. Astor, who helped design his launches and then piloted them himself, followed with the purchase of the 90-foot electric launch *Utopian,* for which he built an elaborate boathouse on his estate near Rhinebeck, N.Y.

In 1893, the captain of the cruiser USS *New York* read about Astor's *Corcyra* and decided to equip his ship with a 31-foot captain's gig from the Electric Launch Co. On May 24, 1893, the *New York Herald* told of the plan, with this headline: "New York's Electric Gig. The Cruiser the First War Ship in the World to be Equipped with This Style of Boat."

But Grand Duke Alexander of Russia, who was in New York for the naval show of 1893, also read about the *Corcyra* and wanted a boat like it for himself. Protocol being what it was, Alexander got the gig intended for the captain of the *New York,* and the captain had to wait for the next electric launch to be completed.

The gigs for Alexander and the *New York* were powered by a motor which was developed from a fist-sized electric motor patented in 1880 by William Woodnut Griscom. Each launch carried 64 storage batteries and was operated by one man, called a "steersman."

Also in 1893, 54 electric launches were the stars of the Columbian World's Fair in Chicago as they carried about one million sightseers around the circuit of lagoons, at 25 cents one way. The 20-passenger launches, one report said, drew attention because of their "mysterious fishlike motion, hardly rippling the smooth surface of the water" as they glided along the lagoons. The boats proved to be more popular than the gondolas imported from Venice and actually invaded Venice itself after the World's Fair was over.

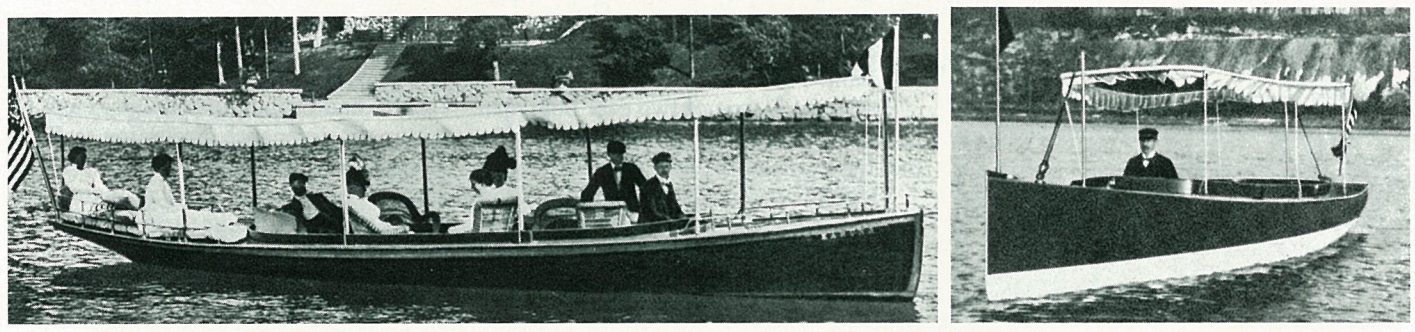
The chain of events continued in 1897, when Czar Nicholas II of Russia, apparently impressed by Grand Duke Alexander's gig, ordered a 37-foot tender for his royal yacht, the *Polar Star*. The order was placed with the Electric Launch Co. by the czar's fleet captain through the Russian naval attache in Washington, D.C.

Most of the electric launches produced to that time were comfortably furnished with wicker chairs, tables, rugs and awnings if needed, but the czar's tender was more like a miniature floating palace. It was reported that the czar's gig was made of the finest material so as to be "a credit to this branch of American industry." Its oak hull was sheathed in brass, and it had mahogany desks, velvet carpets and two wicker chairs with Russian-leather cushions. Deck hands rode in cockpits fore and aft, separated from His Imperial Majesty.

The *New York Journal* had headlined proudly that "Czar's Boat to be Built in America. The Fame of our Electricians Leads Him to Select Our Work."

Although the Electric Launch Co.'s customers included many other affluent persons, like Baron Nathaniel de Rothschild, sales were not confined to the rich. In addition to an electric-powered ferryboat and police boats, passenger launches became popular at resorts, summer hotels and city parks. In the 1890s, some transit lines operated electric launches in parks they established at the ends of their trolley lines. Large "omnibus" launches were bought for the lakes and ponds, with the added advantage that their storage batteries could be recharged at the nearby trolley circuits.

The heyday begun with John Jacob Astor's *Corcyra* ended abruptly in 1897 when Griscom, the founder, president and guiding genius of the Electric Launch Co., died in a hunting accident at the age of 46. The company, without his strong leadership, hit on hard times and foundered. Isaac Rice, of New York City, a noted attorney and businessman — who was the head of 15 other companies — bought the ailing firm. On Feb. 7, 1899, he merged it with the Holland Torpedo Boat Co. to form the Electric Boat Co. Rice became the first president of the new firm, which went on to produce electric-powered boats for both above and below the water.



Marine Marvels. *Silent running small boats manufactured by the Electric Launch Co. in the 1890s, proved popular for a variety of uses. Multimillionaire John Jacob Astor ordered his launch,* Corcyra, *in 1892 (right). Within a few years, the boats such as the 36-foot* Karuna *shown here carrying vacationers at Thousand Islands on the St. Lawrence River at the turn of the century (left), became popular at resorts and summer hotels.*

GD World

Vol. 12 No. 7 July 1982

Land Systems To Design New Tank Test Vehicle

The U.S. Army Tank Automotive Command (TACOM) has awarded Land Systems a $12.9 million contract to design and fabricate a tank test bed vehicle. Work on the vehicle will be performed at the Land Systems Center Line facility over the next three years.

P.W. Lett, Vice President of Engineering, appointed R.P. Erickson as acting Tank Test Bed Program Manager. C.M. Edwards, Systems Manager, and J.J. Yeats, Technical Manager, have been named to Erickson's staff.

Major goals of the tank test bed design will be to reduce armor volume, increase surveillance and fire power, make maximum use of M1 components and select a reliable automatic loader for the 120-mm. gun.

During the 37-month contract, Land Systems will design a test vehicle to prove the survivability and operational characteristics that best meet the threat envisioned for the years 1990 to 2000.

TACOM chose Land Systems as the sole contractor for the program. Other competitors were FMC Corporation, AAI Corporation and Pacific Car and Foundry Company.

Two subcontractors, Rheinmetall of the Federal Republic of Germany and the Northern Ordnance Division of FMC, will provide competing designs for the loader during the first 12 months of the program. Land Systems and the government will then select the best design for continued development.

"We have proposed a technically difficult, fast-moving program," Dr. Lett said, "that maintains Land Systems as the primary source of main battle tanks for the U.S. Army."

USAF Awards $6 Million Fee To Fort Worth

The U.S. Air Force gave $6.215 million in award fees to General Dynamics for achieving cost reductions in F-16 support costs.

"My decision is based on the fact that the F-16 surpassed its targets for support cost and on significant evidence of General Dynamics' effort in reducing F-16 support costs," said Lt. Gen. Lawrence A. Skantze, Commander of the Air Force's Aeronautical Systems Division.

"There has been increased recognition throughout the entire Department of Defense that the cost of maintenance, spare parts and support equipment often exceeds the initial procurement of a weapons system," added Brig. Gen. George L. Monahan, Jr., System Program Office, Deputy for F-16.

Continued on Page 4

The F-16XL over Texas

Evolutionary F-16XL Makes Its First Flight One Day After Its Rollout at Fort Worth

The F-16XL flew for the first time July 3rd at Fort Worth — just 24 hours after it was formally rolled out in ceremonies which were attended by military and government officials and hundreds of General Dynamics officials and employees.

The flight was described by GD Test Pilot Jim McKinney as "a text book first flight. The aircraft performed as predicted. The F-16XL has excellent handling qualities and a solid ride."

The F-16XL is an evolutionary aircraft based on the operationally proven F-16 Falcon. The most distinctive feature of the F-16XL is a new, highly swept wing developed by General Dynamics in collaboration with NASA. The new cranked arrow wing, with more than twice the area of the wing on the standard F-16, along with a 56-inch longer fuselage, enables the F-16XL to carry 80 percent more internal fuel. The wing skins are composed of an advanced graphite composite to provide strength and stiffness for maximum performance.

On its initial flight, the F-16XL flew for an hour and five minutes, attained an altitude of 30,000 feet and reached a speed of 0.9 Mach before landing back at Fort Worth.

Several more flights are scheduled in Fort Worth before the F-16XL is to be ferried to Edwards AFB, Calif. for further tests. About 240 flights of the single-seat F-16XL and the two-seat version that is due to be completed in September are scheduled in the present test program.

The F-16XL now being tested is powered by the same Pratt & Whitney F100 turbofan engine that powers the F-16. The aircraft design has excellent high and low speed flying qualities, shorter runway requirements, high penetration speeds and significant increases in combat range and performance.

During the rollout ceremony, David S. Lewis, GD Chairman and Chief Executive Officer, said the advanced design aircraft combines "the best technology of the 1980s with a proven design that enabled us to make only a minimum number of changes."

Herbert F. Rogers, Vice President and General Manager of Fort Worth, added that "while the F-16XL looks drastically different, it really is not. The major differences are that the wings and horizontal tails have been removed and replaced by the cranked arrow wing, and two fuselage plugs totalling 56 inches have been added.

"The F-16XL represents a truly dramatic increase in fighter capability, and because it shares a substantial commonality with the F-16, it would easily be phased into production with the F-16," Rogers said.

Lt. Gen. Lawrence A. Skantze, Commander of the Aeronautical Systems Division, had high praise for the F-16 program, calling it "one of the singular outstanding successes that we have had in acquisition management during my tour in the U.S. Air Force.

"The F-16 is rapidly becoming the backbone of the Tactical Air Command. It is being produced in a superb fashion, on schedule and at cost. It has well acquitted itself as a combat aircraft."

The general called the F-16XL rollout a "very exciting event. It is a great tribute to the management of General Dynamics and a far greater tribute to the work force and designer team of this great aircraft."

Fabrication of two F-16XL aircraft was begun in 1981 and was largely company funded. The Air Force supplied two early test aircraft which were modified to the F-16XL configuration, the turbofan engines, a new two place cockpit and funds for flight tests at Edwards AFB.

U.S. Senator John G. Tower, Republican of Texas, praised the "fine new aircraft." He also said, "I have a great deal of confidence in the future of this aircraft, because of the proven confidence in the F-16. I am proud of what General Dynamics has done, and it has been consistent with the Department of Defense's goal of improving existing systems, rather than developing new systems."

Also speaking at the ceremony was U.S. Congressman Jim Wright, Democrat of Texas, who told the crowd that "those of you in production never cease to amaze me. You have, in years past, built great bombers . . . then a great fighter . . . and now you have improved upon the excellent by building a more advanced F-16.

"Congratulations to all of you for having produced, in a dedicated way, the very best aircraft the U.S. has ever had."

Others attending the rollout ceremony were: U.S. Senator Barry Goldwater, Republican of Arizona; Congressman Martin Frost, Democrat of Texas; Gen. Charles Gabriel, Air Force Chief of Staff; Lt. Gen. Kelly Burke, Air Force Deputy Chief of Staff for Research, Develop-

Continued on Page 4

F-16XL Rollout. *In photo at left, David S. Lewis, GD Chairman and Chief Executive Officer speaks at the F-16XL rollout. Seated on the platform (from right, front row) are: Senator John G. Tower, Republican of Texas; Congressman Jim Wright, Democrat of Texas; Senator Howard Cannon, Democrat of Nevada; Senator Barry Goldwater, Republican of Arizona; Congressman Martin Frost, Democrat of Texas; Gen. Charles Gabriel, Air Force Chief of Staff and Lt. Gen. Lawrence A. Skantze, Commander of the Aeronautical Systems Division. In back row (from the right) are: Dr. Alton G. Keel, Assistant Air Force Secretary for Research, Development and Logistics; Lt. Gen. Kelly Burke, Deputy Chief of Staff for Research, Development and Acquisition; Lt. Gen. Thomas H. McMullen, Vice Commander of the Tactical Air Command; Brig. Gen. George L. Monahan Jr., Systems Program Office, Deputy for F-16; Col. Howard L. Bodenhamer, Air Force Plant Representative, and Oliver C. Boileau, GD President. In photo at right, the crowd looks at the F-16XL.*

AFTI/F-16 Makes First Flight Demonstrating New Technology

A U.S. Air Force research and development aircraft — the AFTI/F-16 — made its maiden flight July 10th at Fort Worth. AFTI stands for Advanced Fighter Technology Integration.

General Dynamics Test Pilot Alex Wolfe said the first flight of the modified F-16 "was perfect."

AFTI/F-16 has new digital flight controls, an advanced cockpit, highly integrated avionics and unconventional flight control surfaces that 1,360 hours of wind tunnel testing have demonstrated will allow new aircraft maneuverability.

Following additional functional check flights at Fort Worth, the aircraft will be ferried to Edwards AFB, Calif., to begin a 275-sortie flight test program.

The AFTI/F-16 program is a joint effort of the USAF's Flight Dynamics Laboratory, the U.S. Navy, NASA and General Dynamics.

The AFTI/F-16 will flight test advanced technologies which will improve fighter lethality and survivability. The core technology in the AFTI/F-16 is the new digital flight control system (DFCS) which has computers that offer a substantial increase in capability over present analog computers without added weight or volume. This increase in computing ability allows growth typically needed in multimission fighters.

The AFTI/F-16 will test increased capabilities in both air-to-air and air-to-surface combat, since the DFCS allows tailoring the aircraft's flying characteristics to best match the mission.

In the second phase of the testing program, the DFCS will be tied to the aircraft fire control system and new avionics to evaluate the role of automation in combat fighters.

AFTI/F-16 can deliver weapons with a high degree of accuracy while improving a fighter pilot's combat survivability. In one maneuver, the aircraft can turn without banking, for instance. If the AFTI/F-16 pilot sees a target at his one o'clock position, he can quickly "flat" turn toward the target, fire, and leave in less time than it takes most conventional fighters to bank, turn, fire and escape.

These new maneuvers depend on twin canards, or small wings, beneath the engine inlet, trailing edge flaps and the horizontal tail, according to Max Waddoups, AFTI/F-16 Program Manager at Fort Worth.

In appearance, the AFTI/F-16 looks like the F-16 Falcon except for a large dorsal fin along the top of the fuselage and the canards beneath.

Mission avionics on the aircraft represent a major step toward pushbutton flying. Buttons surrounding two display screens, for example, select the DFCS multimodes and show a variety of flight information from preflight systems checks to weapons status. The new pushbuttons, controllers and other AFTI/F-16 cockpit instruments — like a wide field-of-view head-up-display and voice control electronics — are designed to make the pilot's job easier.

"It is the combat percentages, or advantages, that the AFTI/F-16 program is all about," said Lt. Col. Arthur Bianco, Air Force Program Manager. "We'll check out the aircraft's new technologies thoroughly, but our long-term interest is how everything works together to give the pilot a better weapons system.

"That's the integration part of AFTI's name. While some of its concepts and hardware have been individually demonstrated, we want to know what the payoff is for the pilot when they're all integrated on one vehicle."

Officials Given Tour Of F-16 Production Line at Fort Worth

Key defense officials from two nations recently visited Fort Worth for tours of the F-16 production area and assembly line.

Anders Sjaastad, Minister of Defense for Norway, and U.S. Deputy Defense Secretary Frank Carlucci were briefed on the F-16 and on the status of the multinational coproduction program.

Carlucci was given an advance look at the F-16XL that was formally rolled out July 2nd.

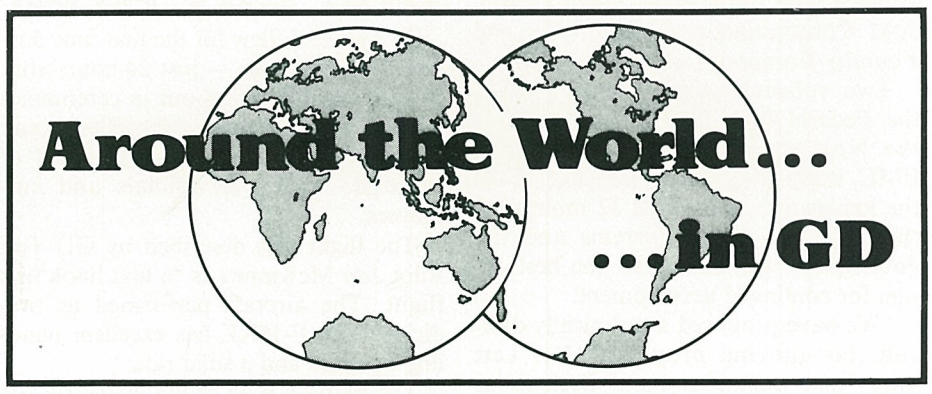
First Flight. *The U.S. Air Force/General Dynamics AFTI/F-16 makes its first flight from Carswell AFB, Tex., July 10th. The AFTI/F-16 Program is a combined effort of the U.S. Air Force, Navy and NASA. General Dynamics is the prime contractor.*

Stinger Firings. *The first firing of Pomona's Stinger weapon system by U.S. Forces in Europe resulted in 37 successful intercepts out of 40 firings. The tests of the shoulder-launched Stinger antiaircraft weapon system took place last month on the island of Crete against simulated aircraft targets.*

Savings and Stock Investment Values

	May 1980	May 1981	May 1982
Salaried			
Government Bonds	$ 2.4587	$ 2.6052	$ 2.9671
Diversified Portfolio	1.7581	2.1840	1.9268
Fixed Income	1.0889	1.2058	1.3413
Hourly			
Government Bonds	2.4564	2.6026	2.9643
Diversified Portfolio	1.7932	2.2316	1.9665
GD Stock	$31.6250*	$32.0000	$25.7500

* Reflects 2 for 1 stock split of November 1980.



CHQ: *Edward D. Shepherd* was promoted to Corporate Deputy Program Director-Electronic Mail Program . . . *John E. Ensor* to Manager-Asset Management . . . *Larry Feuerstein* transferred from Data Systems, Eastern Center and was promoted to Director, Planning & Financial Control . . . *Robert K. Echales* joined as Internal Auditor . . . *Richard G. Henning* joined as EDP Auditor . . . *Sharon L. Boni* joined as Senior Auditor.

Fort Worth: *R. L. Allen, P. L. Stanley* and *J. C. Klovstad* were promoted to Program Estimator Senior . . . *K. E. Badgett* and *D. F. Herr* to Material Project Administrator, Senior . . . *D. S. Modisett* to Material Cost Coordinator . . . *J. W. Booth Jr.* to Chief of Estimating . . . *W. E. Box* to Financial Supervisor . . . *J. T. Brookshire* to Field Service Engineer . . . *D. A. Burgoyne* to Inspection Supervisor . . . *R. J. Calva* to Project Coordinator . . . *C. S. Chesshir* to Engineering Group Supervisor . . . *J. D. Engelland* to Engineering Director . . . *S. M. Falconnier* and *P. D. Laury* to Manufacturing Technology Engineer, Senior . . . *C. E. Fish* to Principal Field Service Engineer . . . *D. E. Foster* to General Foreman . . . *J. R. Gilbert* to Program Specialist . . . *M. V. Hill Jr.* to Chief of Finance . . . *C. T. Holden* to Traffic Foreman . . . *W. O. Lee, B. C. Peebles* and *D. E. Sundstrom* to Engineering Manager . . . *P. S. Paul Jr.* to Industrial Relations Specialist.

Convair: *David G. Stone* transferred from St. Louis and was named Manager, Estimating . . . *Carl P. Santora* was promoted to Operations Supervisor, Manufacturing Engineering . . . *Donald E. Silva* and *Bernard H. Freund* to Engineering Chief . . . *Robert S. Stephens, Michael D. Barry* and *Ronald E. Johnson* to Operations Supervisor . . . *Raymond E. Wisniewski, Kenneth D. Arnold* and *Lowell G. Markert* to Group Engineer . . . *James T. Hicks* to Project Engineer, Senior . . . *William C. Strobl* to Program Manager . . . *Stanley A. Bass* to Director-Marketing . . . *Stephen C. Birmingham* to Material Operations Supervisor . . . *Lew O. Bruun Jr.* to Operations General Supervisor-Manufacturing Engineering.

EB: *Stephen McLean* was promoted to Nuclear Test Supervisor . . . *Frank Perry* to Supervisor, Trade Planning . . . *Lewis Cornelius* to EEO Programs Administrator . . . *Carole Fahey* to Data Systems Analyst, Senior . . . *Hugh Glynn* and *Robert Grant* to Engineering Supervisor . . . *Christopher Mullaney* to Superintendent . . . *David Douglas* to Assistant Program Management Chief . . . At Quonset Point: *Paul Cagnon, Edward Guertin, William Sauer, Raymond Grandchamp* and *Anthony Piche* were promoted to General Foreman II . . . *Donald Deroy* to Foreman II . . . *John Kopka* to Manager of Manufacturing.

Stromberg-Carlson: *Raphael Bates* and *Ronald E. Murphy* were promoted to Manager, Marketing Support . . . *Case L. Patten* to Supervisor, Area Installation . . . *Kenneth E. Walker* to General Supervisor, Manufacturing Engineering . . . *Howard D. Maney* to Manager, Material . . . *Michael L. Western* to Supervisor, Manufacturing . . . *Craig P. Adamson* and *Clyde V. Smith* to Program Administrator . . . *Douglas M. Benjamin* to Administrative/Control Coordinator.

Quincy Shipbuilding: *Daniel Gale* was promoted to Chief Guarantee Engineer . . . *Timothy Goffon* to Superintendent-Testing.

ATC: *Kathy Fennessy* was promoted to Supervisor, Industrial Relations . . . *Ma Seokuk* to Director, Operations . . . *Paul Woerz* to Manager, Human Resources.

Pomona: *J. R. Amiss* was promoted to Assistant Project Engineer . . . *D. M. Anderson* to Program Director . . . *M. R. Dykes* to Facilities Specialist . . . *T. J. Furois* and *K. G. Heath* to Manufacturing Development Specialist . . . *D. S. Hollenbeck* to Assistant Program Director . . . *R. E. McCleary* to Project Coordinator . . . *P. S. Nayar* to Staff Scientist . . . *O. J. Wood, W. C. Miller* and *C. B. Terry* to Senior Project Engineer . . . *C. G. Bishop* to Packaging Group Engineer . . . *E. E. Hambly III* to Technical Training Representative . . . *F. J. Leffingwell* to Project Engineer . . . *J. L. Marcum* to Senior Research Engineer . . . *F. J. Serafin* to Procurement Program Administrator . . . *D. R. Still* to Senior Design Engineer . . . At Camden: *J. D. McClanahan* was promoted to General Supervisor.

Land Systems: *John N. Watters* transferred from St. Louis and was promoted to Manager, Financial Planning.

Five Convair Employees Share $5,240 for Their Suggestions

Five Convair employees are $5,240 richer because of Employee Suggestions they submitted to the company. They were led by Aaron Roberts, a Senior Tooling Specialist, who received $1,641 for his suggestion concerning assembly of struts for the Boeing 767.

Roberts noted in his suggestion that an accumulation of tolerances developed during manufacturing and that these resulted in unnecessary and difficult adjustments in the final mating fixture. He suggested revising the assembly tools to fix the point locator on one side only and providing a small slot on the opposite side to allow assembly within tolerances.

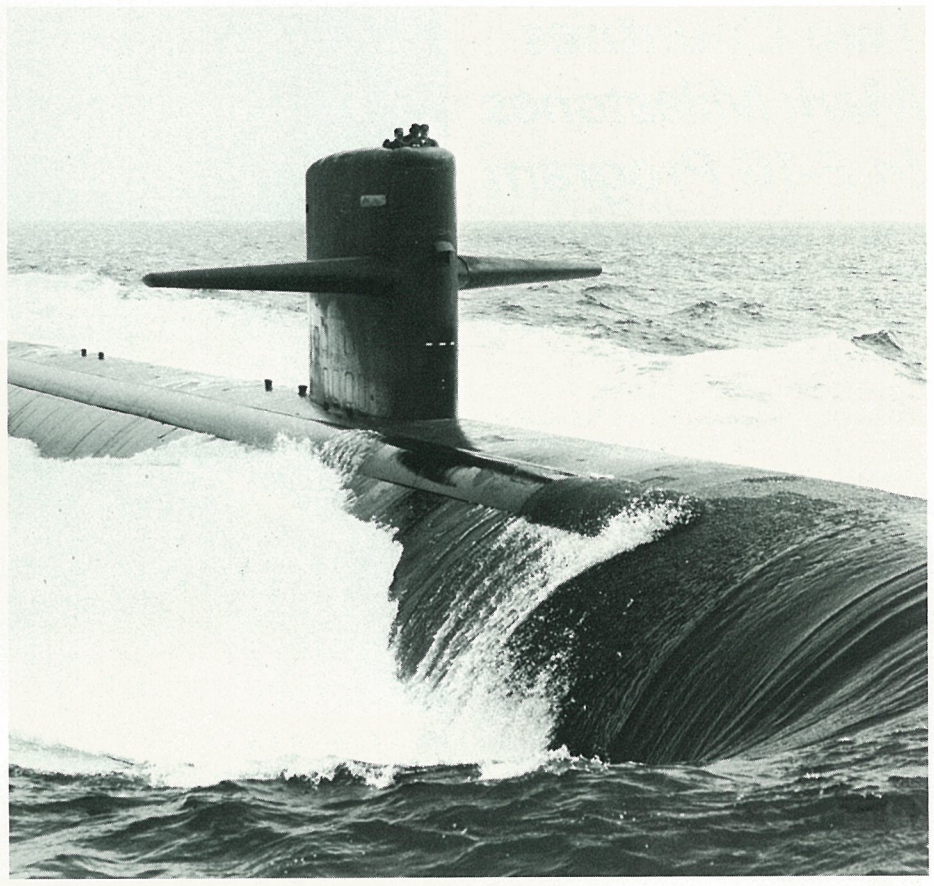
In evaluating Roberts' suggestion it was found that under the old approach up to 200 manhours could be involved in fitting the parts, but that his suggestion substantially reduced this time. The net savings, after tool modification, was $16,409.

H. H. Packer and E. W. Stewart, Launch Service Technicians at the Eastern Test Range, noted that no protective coatings were used on launcher cables for Atlas/Centaur, and that the cables were destroyed during a launch. They recommended the cables be temporarily installed and routed to get the proper lengths and then be removed and coated with a heat-resistant protective coating. Cables now can be used indefinitely, according to the evaluation. Based on first-year savings of $17,904, Packer and Stewart will divide $1,790.

Janet Pfaff, an Engineering Electronic Technician working in the Hybrid Microcircuit Assembly Lab, received $951 for her suggestion that the flow benches in the lab be turned off when not in operation. These flow benches circulate room air through filter banks to maintain clean benches and work areas.

Under the previous procedure, these benches operated 24 hours a day, whether the lab was in use or not. Pfaff determined that the Quality Verification Procedure allowed the bench to be turned off when not in use, providing it was turned on again 15 minutes prior to use. Evaluators found that following her suggestion would cut Convair's electrical bill an estimated $7,687 per year, and with the 25 percent Energy Bonus, Pfaff was awarded $951.85 for her suggestion.

Finally, Shirley A. Mortensen, a Tool and Cutter Grinder at Lindbergh Field, has $857 for her suggestion that the rivet shavers used on all of Convair's products be sharpened on the Huffman numerically-controlled grinding machine. By use of this computer-controlled grinder, sharpening time can be cut from five minutes to two minutes



Under Way. Baltimore *(SSN 704) plows through the Atlantic during her recent sea trials. The vessel is Electric Boat's 12th 688-class fast-attack submarine and will be delivered later this year.*

F. R. Lee Named V.P. Production At Electronics

Fred R. Lee has been named Division Vice President-Production at Electronics Division. Lee, 53, succeeds Kenneth S. Lake, who earlier this year was appointed Division Vice President-Operations at Convair Division.

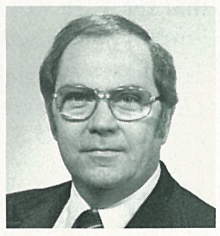
Lee

Lee joins Electronics from Pomona's Camden, Ark., facility, where he was serving as Deputy General Manager.

A native of San Diego, Lee earned a Bachelor of Science degree in metallurgical engineering at the University of Nevada at Reno and a Master of Business Administration degree in human relations and management at California Western University in San Diego.

Daddi Receives Silver Knight

A. B. Daddi was awarded the Silver Knight of Management by the Convair Chapter of the National Management Association (NMA) on June 28, 1982. Daddi is Director of Industrial Relations for Convair and the Executive Advisor to the Convair Chapter.



Daddi

The award, the highest that a local chapter can bestow, was made by George Heller, the Chapter President. Heller praised Daddi's service as Executive Advisor to the chapter and his 24 years of association membership in his various work locations.

GD World

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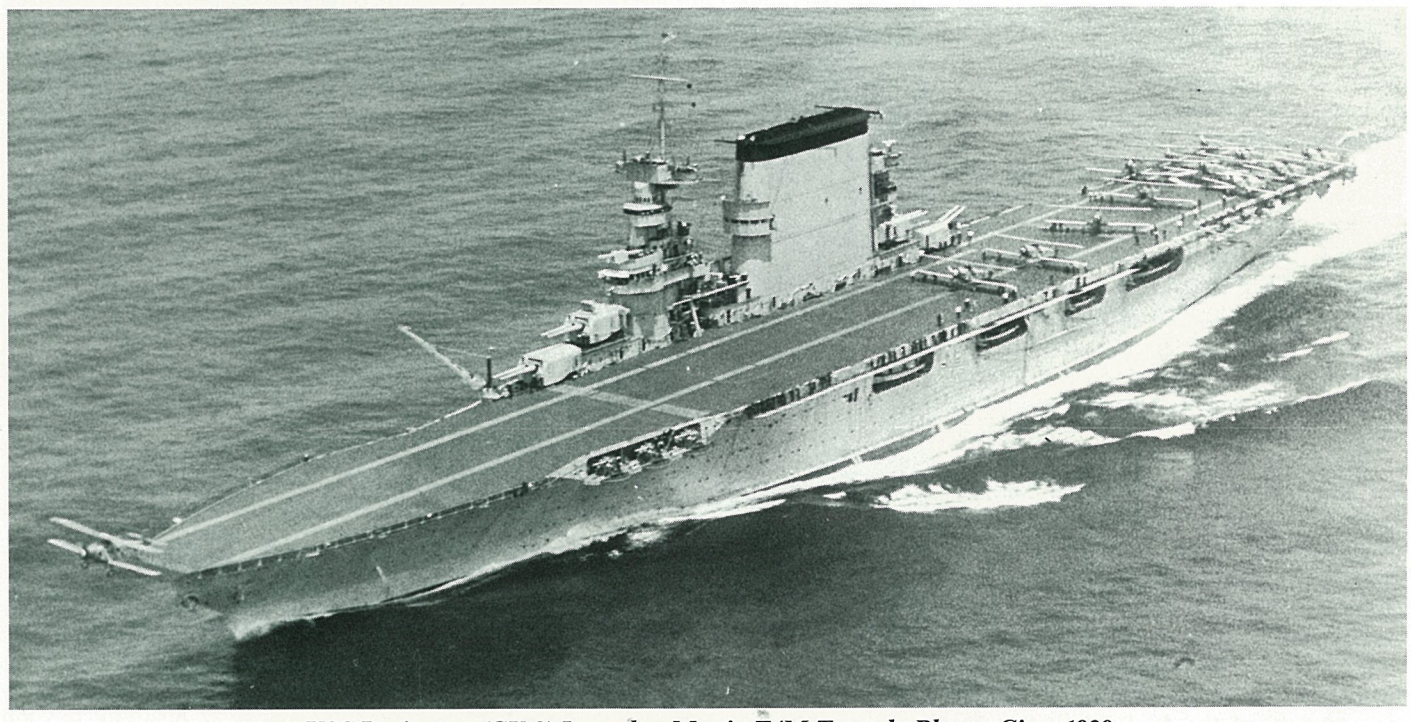
GD Flashback



USS* Lexington *(CV-2) Launches Martin T4M Torpedo Planes, Circa 1929

USS Lexington Was America's 2nd True Carrier

When the USS *Lexington* slid down the building ways into the Weymouth Fore River near Quincy, Mass., on October 3, 1925, she was only the second true aircraft carrier built by the United States. But she was destined to participate in the first naval battle fought entirely by aircraft.

In the Battle of the Coral Sea in World War II, not one ship, including the *Lexington,* sighted or fired a shot at another.

Tragically, the "Lady Lex," as she was affectionately called by her crew, was one of the ships sunk in the bitter engagement.

The USS *Lexington,* CV-2, was preceded in the American carrier fleet only by the experimental USS *Langley*, CV-1, and the USS *Saratoga,* CV-3. The *Langley* was commissioned in 1922 after being converted from the fleet collier USS *Jupiter.* The *Saratoga,* the first true carrier, was commissioned less than a month before the *Lexington.*

The keel for the *Lexington* was originally laid as CC-2, a 43,000-ton battlecruiser, on January 8, 1921, at the Fore River shipyard, now Quincy Shipbuilding Division. But under terms of the Washington Naval Treaty of February 6, 1922, she was to be scrapped, and construction was suspended on February 8, 1922.

Congress saved the *Lexington* on July 1, 1922, by authorizing her conversion to an aircraft carrier, and work was resumed 11 days later.

The *Lexington* was christened on October 3, 1925, before 20,000 spectators by Mrs. Theodore Douglas Robinson, wife of the Assistant Secretary of the Navy. The new carrier joined the fleet on December 14, 1927.

Built at a cost of $45,952,644.83, she was one of the largest warships built at Quincy to that time. She had an overall length of 888 feet, extreme beam of 105 feet and mean draft of 32 feet. She had a full load displacement of 39,000 tons and had a top speed of 33 knots. Her peacetime complement was 195 officers and 1,927 enlisted men, but in World War II she had a complement of 3,000 men.

In 1929, when freezing winter conditions knocked out electrical power at Tacoma, Wash., the *Lexington* tied up alongside a pier and provided the city's entire electrical power for three months.

In July 1937, she cruised 25,000 miles in a futile 27-day search for the missing aviatrix, Amelia Earhart.

On December 7, 1941, she was transporting Marine Corps aircraft to Midway when word came that the Japanese had attacked Pearl Harbor. She immediately joined other ships in an unsuccessful search for the attacking force.

In an air action off Bougainville on February 20, 1942, the *Lexington's* task force was attacked by 18 Japanese bombers, of which 17 were shot down while all enemy bombs missed the *Lexington.*

Five of the bombers were shot down by Lt. Edward "Butch" O'Hare, a *Lexington* pilot, who received the Medal of Honor for the exploit. Chicago's O'Hare International Airport is named in his honor.

The *Lexington's* last engagement was the Battle of the Coral Sea on May 8, 1942. At 11:10 a.m., she was attacked by Japanese torpedo planes and was hit five times on the port side. Enemy dive bombers then scored three more hits. She listed badly, with fires raging furiously.

At 1:47 p.m. the *Lexington* was rocked by a heavy explosion as gasoline ignited below decks. The fire spread rapidly, and at 5:07 p.m. the ship was abandoned. Her survivors were picked up by destroyers standing by.

The fires aboard continued through the night, and new internal explosions erupted, tearing the ship apart. The next day the destroyer USS *Phelps* fired four torpedoes into what remained of her hull, and she went down.

The loss of the *Lexington* was deeply felt by the employees at the Fore River shipyard, and they petitioned the government to name a new carrier after her. The petition was granted, and CV-16, the *Cabot,* became the *Lexington (II).*

The *Lexington (II),* also built at Quincy, went on to compile a record of distinction equaled by few carriers of her time, and the death of the first *Lexington* was avenged.

Two Countries Mark Milestones In F-16 Program

Major milestones in the F-16 multinational coproduction program were reached last month when the assembly lines in the Netherlands and Belgium each delivered their 100th aircraft.

Ceremonies marking the deliveries were held on June 14th at the Fokker plant near Amsterdam and the next day in Belgium at the SABCA plant in Gosselies.

USAF Brig. Gen. George L. Monahan, Jr., System Program Office, Deputy for F-16, noted at each event that the 200 European-assembled aircraft plus more than 500 from the General Dynamics assembly line in Fort Worth added up to more than 700 F-16s already delivered to the air forces of seven nations since the program began in 1975.

"That really is a significant milestone," Monahan said, "but in my view it is just a good start. We have ahead a long way to go."

Ted Webb, F-16 Program Director at Fort Worth, said that while the five-nation coproduction program had been a challenging one, it also had been "remarkably successful." He attributed this "in large measure to the leadership of the governments and the Air Force people who have directed the program and certainly to the cooperation and willingness to learn, and change our ways, of all the industrial partners."

Monahan and Webb were among representatives of government, military and industry at both ceremonies who noted that the F-16 coproduction program has been on schedule and on cost since its beginning. Under the program, companies in Belgium, Denmark, the Netherlands, Norway and the United States produce components and assemblies for the versatile fighters.

The 100th aircraft assembled at Fokker was delivered to the Royal Netherlands Air Force. It was the 62nd F-16 of the 144 now under contract for that country. Fokker also assembles F-16s for the Royal Norwegian Air Force, which has received 38 of its 72 on order.

At SABCA, the 100th aircraft was delivered to the Danish Air Force, which now has 40 of the 58 F-16s it has on order. The Belgian Air Force, whose aircraft also are assembled at SABCA, has received 60 of the 116 F-16s it has under contract.

The assembly line at Fort Worth produces aircraft for the U.S. Air Force and for the air forces of other countries.

At Fokker, Frank Nel, a member of the Board of Management and Director of Technology, said the F-16 program had offered his company "great advantages" in development of new "management and production systems techniques." Webb responded that "it has not been by any means one way . . . it has been a true exchange for all of us.

"We feel also that this has been an important military endeavor in providing what we like to think is the world's finest combat fighter for these five participating nations," Webb said.

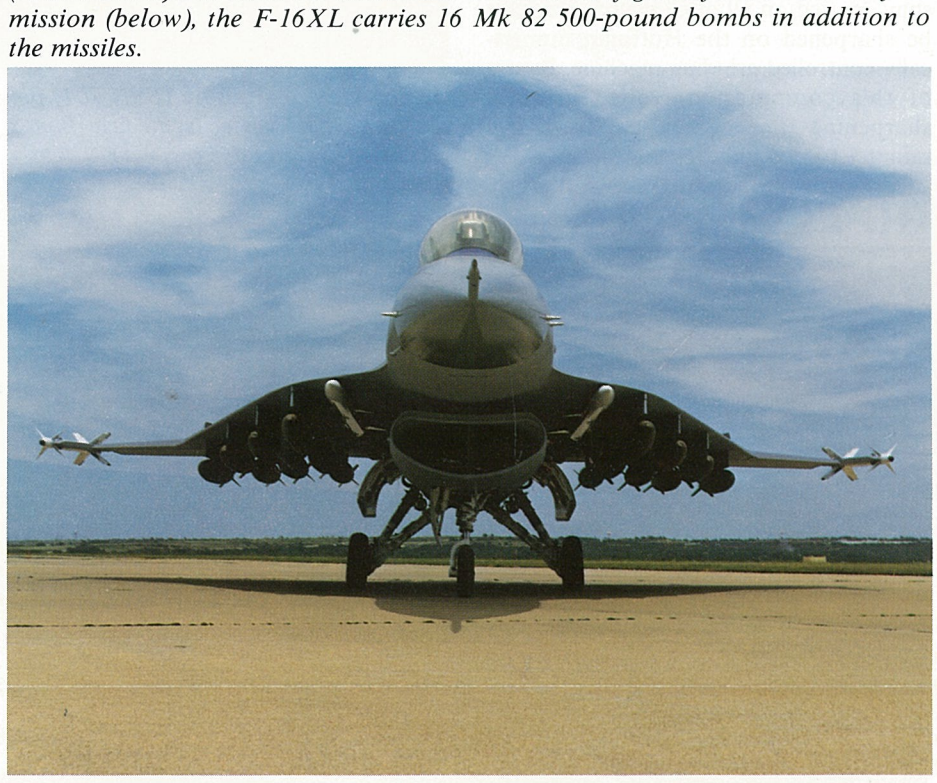
Monahan noted that the F-16's "performance is meeting and in some cases exceeding the performance that we anticipated several years ago."

Lt. Gen. Willem Boerman, Director of Material for the Netherlands Ministry of Defense, said that during its three years of operation in the Netherlands the F-16 "has shown itself to be a truly great fighter-bomber aircraft, at a cost which is more affordable than most of its competitors."

At SABCA, Directeur General P. George Willekens voiced similar praise for the program and expressed hope that the Belgian Government would follow on with additional orders.

"Continuation is a must, to guarantee the survival of the Belgian aerospace industry," Willekens said.

Multimission Fighter. *The prototype F-16XL is shown configured for an air-to-air mission (above) carrying Advanced Medium Range Air-to-Air Missiles (AMRAAMs) and AIM-9L Sidewinder missiles. Configured for an air to surface mission (below), the F-16XL carries 16 Mk 82 500-pound bombs in addition to the missiles.*



F-16XL Makes Its First Flight Day After Fort Worth Rollout

Continued from Page 1

ment and Acquisition; Lt. Gen. Thomas H. McMullen, Vice Commander of the Tactical Air Command; Brig. Gen. George L. Monahan Jr., Systems Program Office, Deputy for F-16; James M. Beggs, Administrator of NASA, and Dr. Alton G. Keel, Assistant Secretary of the Air Force for Research, Development and Logistics.

During the ceremony, Rogers told the crowd that the first flight of the F-16XL was imminent. Exactly 24 hours later, the aircraft rolled down the runway and climbed into the sunny north Texas sky.

During the rollout ceremony, two F-16s were taxied out just before the F-16XL was shown to the public. One F-16 was loaded for an air-to-air mission with four AIM-9 Sidewinder missiles and a 300-gallon centerline fuel tank. The other F-16, configured for an air-to-surface mission, had six 500-pound Mk 82 bombs, two 370-gallon fuel tanks and an electronic countermeasures pod and two missiles.

By contrast, the F-16XL rolled out configured to fly either mission without external fuel tanks. It was loaded with two AIM-9 Sidewinder missiles, four advanced Medium Range Air-to-Air Missiles (AMRAAM) and 16 Mk 82 500-pound bombs.

"Just 19 months ago, this was a paper airplane," Rogers said, "Now it is reality."

Electric Boat Awarded Contract For Trident Design Projects

The U.S. Navy has awarded a $48.7 million contract to Electric Boat for Trident submarine design work.

The contract, which supplements money the shipyard has already received, includes funds for design projects on all eight of the giant missile-firing subs Electric Boat now has under construction.

The contract also carries an option for work on another Trident — the 10th in the class — in the Fiscal 1983 defense budget.

The Navy characterized the contract as part of "a continuous life-cycle support effort for Trident submarines." Those functions include:

- Maintenance of design agent products such as ship drawing index, drawings and index of technical publications to reflect changes and corrections.
- Continuation of design services including liaison action requests, drawing reproduction and distribution, and special studies.

The Naval Sea Systems Command said the intent of the new contract is to "provide additional design services" for six of the 560-foot, 18,750-ton vessels, add design services for two more and provide an option for another.

Electric Boat designed the Trident class and is the sole builder of the ships. The shipyard delivered the lead ship, *Ohio* (SSBN 726) in October of last year. The second, *Michigan* (SSBN 727), is scheduled for delivery later this year.

Convair Begins Cruise Missile Guidance Tests

The first free flight of a Tomahawk-derived test vehicle in Convair's Mid-course Guidance Demonstration program occurred recently over the Eglin AFB, Fla. range.

In the demonstration program, three different low-cost tactical guidance systems are being tested which may have application in Convair's Tomahawk Medium Range Air-To-Surface Missile program, as well as other programs. Each of the systems will update the missile's inertial guidance, in much the same way the present Terrain Contour Matching system provides updates for versions of the Tomahawk now being produced for the U.S. Navy and Air Force.

During the test flight, the missile was launched from an F-4F carrier aircraft and flew a 10-minute free flight as part of the test which lasted just under an hour.

The test vehicle used in the demonstrations at Eglin is based on Convair's Tomahawk, but is five feet longer and is powered by a Teledyne CAE turbojet engine, instead of the Williams International turbofan engine used in the Tomahawk.

Earlier this year, five compatibility flights were made to test the mate between the missile and the aircraft, and six captive flights were made to gather engineering data in preparation for the first free flight. A total of 40-50 captive flights and 12-15 free flights are planned for the program.

Convair's Digital Integrating Subsystem (DIS) computer system is also being tested during the demonstration. DIS transmits commands from the guidance system to the missile's flight controls. It uses a series of small computer systems and a single two-wire transmission line which greatly reduces the amount of wiring in the missile.

USAF Awards $6 Million for Cost Reduction

Continued from Page 1

"A major initiative to reduce these support costs is the use of an award fee as a bonus to motivate a contractor, such as General Dynamics, to design a new system for the lowest possible support cost."

The Air Force in its original contract with Fort Worth Division in 1975 included award fee provisions to assure that the F-16 would be designed for the lowest possible support costs.

These provisions included specific support cost targets that were established jointly by the U.S. Air Force and General Dynamics.

A six-month measurement test conducted by the Air Force at Hill AFB, Utah, confirmed that support costs would be lower than the goals the aircraft was designed to meet. The tests were concluded in February.

"These tests, based on 3,500 flight hours conducted by USAF personnel assigned to the 16th Tactical Training Fighter Squadron, proved that General Dynamics has reduced support costs by $37 million," Gen. Monahan said.

"The Air Force's objective was to reward General Dynamics for considering and reducing the cost of support as part of their early design effort. I feel that this award fee program has been a great success for both the Air Force and the contractor."

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Vol. 12 No. 8 3 August 1982

Ship Writeoffs Result in Loss In 2nd Quarter

General Dynamics reported that in the second quarter of 1982 it wrote off $84 million (pretax) to cover anticipated cost overruns on its first two contracts for SSN 688-class attack submarines at Electric Boat and an additional $15 million to cover excess overhead and cost overruns anticipated on the construction of a coal collier at Quincy Shipbuilding.

Making the announcement on August 5th, David S. Lewis, Chairman and Chief Executive Officer, said the decisions to take the writeoffs led to a loss of $11.0 million, or 21 cents per share, for the second quarter, and earnings of $17.3 million, or 30 cents per share, for the first six months of this year. These figures compare with earnings of $23.8 million, or 42 cents per share, for the second quarter, and $54.6 million, or 98 cents per share, for the first half of 1981.

"We have delivered 12 of the 18 ships covered under the original two SSN 688 contracts with the remaining six scheduled for delivery over the next two and a half years," Lewis said.

"Production work is proceeding in an orderly manner, and we believe the writeoffs taken in this quarter will cover the cost of completing these first two contracts. General Dynamics has other contracts for an additional four SSN 688s at substantially higher prices, and it is expected that these contracts will be profitable. Also at Electric Boat, the second Trident submarine has completed some of its sea trials and is nearing delivery. The Trident program is and will continue to be profitable.

"At Quincy, we have very little work, but we are continuing to maintain the production capability of the shipyard in view of the opportunities for significant new business presented by upcoming U.S. Navy surface ship construction programs. The division is not taking on any new work until the results of the Navy's contract award activity are known," Lewis said.

Sales for the second quarter and the first six months of this year were $1.61 billion and $2.92 billion, respectively, compared to $1.23 billion and $2.48 billion in the same periods of 1981. The new GD Land Systems Division had sales of $345 million which are included in the second quarter 1982 sales. Funded backlog at the end of the first half of 1982 was $12.8 billion, including $1.5 billion at Land Systems.

Lewis said that recessionary pressures continued to impact adversely its commercial operations.

General Dynamics Communications Company and the digital equipment manufacturing operations of Stromberg-Carlson, which were sold in late July, had an operating loss of $17.4 million in the second quarter. "The disposition of these telecommunications units together with the purchase of the Chrysler tank manufacturing operations represent a major restructuring of General Dynamics

Continued on Page 4

Outer Space Bound. *A Centaur high-energy upper stage with Galileo probe deploys from Space Shuttle Orbiter in this artist's rendering. Convair is under contract to NASA to integrate the Centaur with the Space Shuttle for solar system planetary exploration missions.*

Centaur Upper Stage Receives Go for Launches from Shuttle

Convair Division has been given the go-ahead to integrate the Centaur high-energy upper stage with the Space Transportation System for launching the Galileo Jupiter exploration mission and the International Solar Polar Mission in 1986.

The action to restart the Shuttle Centaur program is the result of Congressional agreement last month on a supplemental spending bill which included $80 million for the program. Total program value to General Dynamics is about $300 million for Shuttle integration and the two launches.

Convair had been working on integration of Centaur with the Space Shuttle from January 1981 to January 1982, but reductions planned by the Administration for NASA's Fiscal 1983 budget did not allow continuation of the Shuttle/Centaur program. The most recent action by the Congress put Centaur back on track.

"We are extremely pleased that Centaur was chosen for a new role in space and confident that its performance will justify its selection in meeting the nation's scientific, commercial, and defense needs," said Bill Rector, Convair Vice President and Program Director-Space Programs.

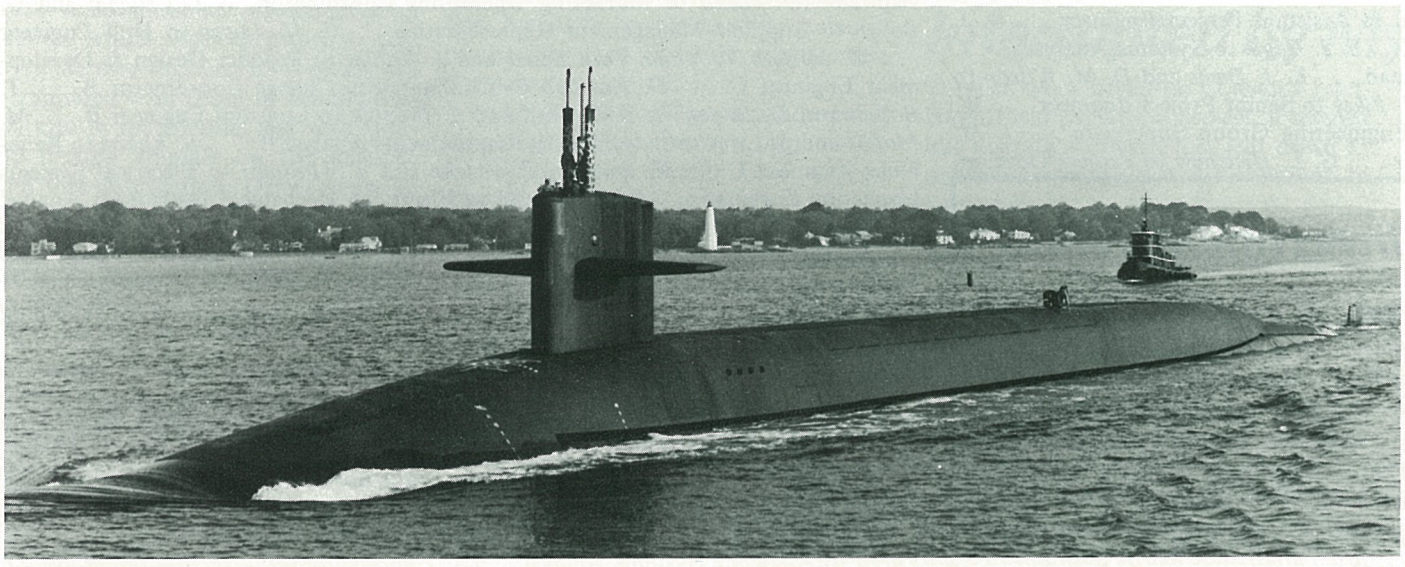
Rector said, "We are convinced, as we have been all along, that Centaur is the best way to provide the nation with a proven high-energy upper stage for launching a variety of payloads from the Shuttle." He pointed out that Centaur will be an important contributor over the next decade to the Space Transportation System and "provide a significant long-term presence in space for Convair."

Convair will build two Centaur stages for use on missions from the Space Shuttle in 1986. One will send the Galileo spacecraft on a mission to explore Jupiter's atmosphere. The second Centaur stage will be used for the International Solar Polar Mission to increase our understanding of the Sun and its effect on the Earth's climate.

The Centaur designed for integration with the Shuttle is a wide-body version, 29 feet long, a little over 14 feet in diameter with payload capability of sending 14,000 pounds into geosynchronous orbit. The wide-body Centaur uses the high-performance liquid hydrogen/liquid oxygen propulsion system that has been successfully demonstrated in more than 60 missions with Atlas and Titan launch vehicles.

The Centaur and its spacecraft will ride inside the cargo bay as the Space Shuttle rockets into low Earth orbit. After the cargo bay doors are opened, Centaur will deploy from the Shuttle and upon reaching a safe separation distance, fire its engines to propel the spacecraft on its long journey into outer space.

The Shuttle/Centaur development team is managed by the NASA Lewis Research Center.



Heading for Sea. *The* Michigan *(SSBN 727) heads down the Thames River at Groton, Conn., on her way to sea trials. The ship, Electric Boat's second Ohio-class submarine, is on schedule to be delivered later this year.*

Falcons Flying From 2 More USAF Bases

Ceremonies marking their transition to F-16 Falcons were held at two U.S. Air Force installations last month.

The first ceremony was held July 1st at Shaw AFB, S.C., when Col. Richard E. Carr, Commander of the 363rd Tactical Fighter Wing, formally accepted the unit's first Fort Worth-built aircraft. A similar ceremony was held eight days later at the 50th Tactical Fighter Wing headquarters at Hahn AB, West Germany.

Shaw is the fourth base in the nation to be equipped with the F-16; Hahn is the second overseas F-16 base for the USAF and the first U.S. Air Forces in Europe base for the multimission aircraft. Both units are to have three squadrons, each with 24 F-16s each.

The F-16s replace F/RF-4 Phantoms at the two bases. One squadron of RF-4s will remain at Shaw, and Col. Carr said "this makes our wing unique at Tactical Air Command. We'll have three squadrons of fighters and another of reconnaissance aircraft all under the same command. No other wing in the Air Force has such a mix."

During the ceremony, Ted Webb, Vice President of F-16 Programs, gave Carr a large photograph of a Falcon flying over the South Carolina base.

At Hahn, Vice President and General Manager Herb Rogers presented a one-fifth scale model of the F-16 to Col. Leon Goodson, Commander of the 50th TFW, and noted that Hahn was joining four European air forces and eight European air bases in operating F-16s for the defense of Europe.

Land Systems To Study New Marine Vehicle

The Naval Sea Systems Command has awarded GD Land Systems a $2 million contract to provide a concept study of the Landing Vehicle, Tracked-Experimental.

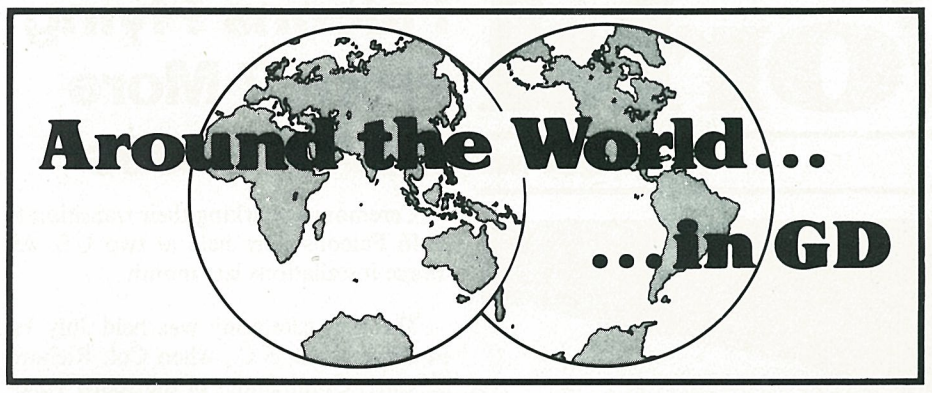
GDLS will compete with FMC Corporation and Bell Aerospace Textron in the conceptual design phase of the program. At the end of the first phase, the Government will select two firms to develop and validate prototypes based on the study.

J. M. Dabrowski, Program Manager, said the new vehicle will actually be a family of vehicles consisting of a personnel carrier, a recovery vehicle, an assault gun vehicle, a command vehicle and an engineering vehicle. These vehicles will be used by the U.S. Marine Corps to meet amphibious assault requirements of the 1990s. Each vehicle will have capabilities for both over-water operations and land operations.

"The new vehicle will be required to operate with fast, heavily armored vehicles on a battlefield where rapid movement of forces, weapons of high lethality, electronic warfare and extreme reliance on highly sophisticated communications will predominate," Dabrowski said.

He added that the new vehicle will have increased offensive capability, improved land mobility and improved survivability compared with the present landing assault vehicles. At the same time, amphibious performance, personnel-carrying capability and the ability of Marine Corps personnel to operate and maintain the vehicle will be maintained.

Marine Consultants, Inc. of Springfield, Va., and the University of Michigan Ship Hydrodynamics Laboratory will support Land Systems in conducting the study.



CHQ: *Robert D. Dupuis* transferred from Convair and was promoted to Corporate Pricing Analyst . . . *Leo W. Loehnig* joined as Senior Tax Accountant . . . *Maureen K. Froehle* joined as Corporate Financial Analyst.

Fort Worth: *S. R. Bates* was promoted to Field Service Engineer . . . *F. H. Cleveland, D. Bergman, J. F. Betsill Jr., E. H. Goodman, R. J. Haskell, D. J. Lajaunie, J. A. Moore,* and *H. L. Patrick* to Assistant Project Engineer . . . *H. F. King* to General Counsel . . . *R. M. Benson Jr.* and *J. R. Pirkle* to Administrative Services Supervisor-Publications . . . *H. W. Blackmon, C. N. Butler, J. A. Edwards, J. E. Garner, J. Gilcrease, G. R. Goodman, G. V. Grubbs, F. J. Levine, H. C. Lynn Jr., J. M. Norton, T. J. Osborne, R. O. Roberts, D. K. White, O. W. White Jr., J. D. Wolfe, C. M. Scott* and *M. B. Tomme Jr.* to Engineering Chief . . . *R. E. Bose* and *W. R. Prasifka* to Engineering Manager . . . *E. D. Campbell, Y. Kim* and *D. F. Larsen* to Program Specialist . . . *J. R. Caster Jr.,* and *S. V. Ledbetter* to Manufacturing Control Supervisor . . . *L. D. Cook* to Chief of Estimating . . . *C. P. Dial* to Nurse Supervisor . . . *A. B. Gilliam* and *R. A. Mosley* to Inspection Supervisor . . . *D. C. Green* to Chief of Manufacturing Control . . . *H. S. Hutchins III* to Project Engineer . . . *M. R. Hawk* and *D. R. Tipton* to Project Manager . . . *C. Jordan III* to Engineering Program Manager . . . *J. E. Mallory* to Chief of Administrative Services . . . *R. B. Martinez* to Purchasing Agent . . . *R. L. Matthews Jr.* to Assistant Physician . . . *W. E. McDaniel* to Administrative Services Specialist . . . *W. I. McHenry* to Marketing Specialist . . . *B. L. McMillen* to Manager-Multinational/Special Projects . . . *L. D. Simpson* to Manager of Procurement . . . *D. E. Wall Jr.* to Manager of Office Services . . . *M. T. Wilcox* to Quality Assurance General Supervisor . . . *H. D. Ramsey* to Chief of Industrial Relations . . . *R. S. Reardon Jr.* to Business Manager-Electronic Products . . . *J. L. Rounsaville Jr.* to Manager of Estimating . . . *S. C. Sowers* to Subcontract Management Representative . . . *K. L. Stewart* to Chief of Procurement . . . *D. E. Tidlund* to Logistics Supervisor . . . *J. M. Tomlin* to Industrial Engineer, Senior . . . *R. D. Harwell* to Administrative Assistant.

DSS: At Central Center, *A. E. Allis* and *N. R. Cole* were promoted to Supervisor-Engineering Software . . . *D. DeMoss* to Manager-Engineering Systems . . . *W. D. Dunmyer* and *M. H. Pittman* to Chief Engineering Software . . . At Eastern Center, *R. E. Claydon* was promoted to Manager-Finance . . . *A. E. Budding* and *D. A. Goodwin* to Supervisor-Data Systems . . . At Western Center, *K. J. Gibson, G. H. Holdsworth* and *B. A. Maddox* were promoted to Supervisor, Engineering Software . . . *G. M. Ochoa* and *S. E. Thomason* to Supervisor, Data Systems.

Electric Boat: *R. T. Daugherty, A. W. Eklof, C. F. Tuttle III, E. A. Morrison, G. A. Benson, W. J. Clark, P. E. Grillo, D. V. Dowd, S. A. Sroka, J. W. Yuhas, S. D. Howard, C. Bartnicki Jr., R. D. Kotecki Jr., C. M. Lane, L. P. Mazza, T. F. Fretard, C. T. Porter, D. L. Purvis, D. S. Nash, J. V. Lewis, D. S. Cook, D. W. Patterson, K. D. Rodgers Sr., C. F. Heiberger, M. W. Crimmins, A. A. Spadafora, K. M. Cohen, L. A. Olivieri, K. J. Carroll, P. J. Duff, E. F. Snyder, G. P. Brochu, E. M. Browne, K. L. Giacomuzzi, G. D. Heulitt* were promoted to Foreman . . . *O. Campbell, F. T. Revezzo, J. V. Santacroce, R. E. Finnigan* and *A. H. Brewer* to Ship Superintendent . . . *A. J. Small, R. S. McNeill, G. T. Glynn, R. J. Gravell, S. J. Miller, E. R. Ibrahim* and *P. J. Yorgensen* to General Foreman . . . *C. F. Dow* to Manager, Trident Ship . . . *F. L. Barrila* to Director of Trident Systems Management . . . *K. Chung* to Chief of Test . . . *H. W. Fink* to Chief of Engineer . . . *W. J. Magro* to Manager of Ships Management . . . *J. E. Mills, P. J. Martin* and *J. W. Chaffee III* to Assistant Superintendent . . . *J. J. Kelliher Jr.* to Facilities Area Manager . . . *R. L. Sullivan* to Nuclear Manager . . . *S. J. Olbrys Jr., R. C. Sturm,* and *T. Coveyou to* Superintendent . . . *M. J. Mather* to Design Services Supervisor . . . *J. L. Bridgman* to Senior Engineer, Test Operations . . . *R. G. Bourdon* to Chief of Trade Planning . . . *D. L. Phinney* to Chief of Planning . . . *M. W. Toner* to Director of Facilities Management . . . *J. E. Aberdeen Jr.* and *E. J. Baker* to Supervisor of Trade Planning . . . *A. M. Kairnes Jr.* to Nuclear Construction Superintendent . . . *T. C. Taylor* to Superintendent, Command and Control . . . *J. Ostenfeld* to Manager, Command & Control Systems Site . . . *C. B. Peteler Jr.* to Chief of Marketing-Reactor Plant Services . . . *J. C. Knight Jr.* to Supervisor of Administration/Control . . . *C. W. Collins* to Superintendent A . . . *L. L. Scholl* to Chief of Nuclear Test Engineering . . . *R. J. Lemos Jr.* to Assistant Chief, Nuclear Engineering . . . *K. M. Bacon* to Records Retention Administrator . . . *W. S. Cleveland* to Administrative/Control Coordinator . . . At Quonset Point, *C. H. Bagley* to Senior Production Services Supervisor . . . *R. J. Capezzano* to Chief of Material Planning . . . *D. B. Poole, R. A. Kawa* and *A. A. Voyer* to General Foreman II . . . *C. D. O'Malley Jr.* to Foreman II . . . *G. R. Rancourt* to Foreman I . . . *T. Valenti* to Superintendent . . . *J. R. Gulluscio* to Chief of Security.

Quincy: *T. H. Baldwin III* was promoted to Communications Manager . . . *R. J. Butera* to Design Chief . . . *A. Alexandrakis* to Manager, Marketing . . . *D. S. Lewis* to General Foreman . . . *G. R. Myers* to Librarian/Sabre Systems . . . *L. M. Honneus* to Staff Assistant.

Avenel: *E. Dupas* and *J. Cannella* were promoted to General Foreman II . . . *R. Cedole* to General Foreman.

Pomona: *J. P. Blackburn* was promoted to Assistant Project Engineer . . . *C. J. Bonk* to Proposal Development Specialist . . . *S. J. Cagle* to Systems Analyst . . . *J. E. Cordes* and *G. L. Hagedon* to Section Head . . . *K. J. Davis* and *D. M. Wilson* to Quality Assurance Group Engineer . . . *E. J. Fikse* to Senior Project Engineer . . . *W. W. Frankenberger* and *G. M. Taylor* to Engineering Group Supervisor . . . *J. M. Harrison* to Manufacturing Group Engineer . . . *G. L. Henshaw* to Project Development Engineer . . . *W. G. Jacobs* and *S. G. Martin* to Group Engineer . . . *K. R. Kalmer* to Superintendent . . . *K. M. Kutyla* to Contract Administrator . . . *B. J. Hook* to Project Coordinator . . . *C. R. Holley* to Quality Assurance Chief . . . *W. A. Waller* to General Supervisor . . . *J. D. Kutschka* to Engineering Specialist . . . *C. F. Leaver* to Manager, Advanced Manufacturing Engineering . . . *F. L. Marczinko, J. S. Ohm, E. H. Russell* and *D. R. Weldon* to Senior Quality Assurance Specialist . . . *B. J. McDonnell* to Program Administration Manager . . . *J. L. Miller* to Manufacturing Supervisor . . . *R. R. Roberts* and *D. A. Rose* to Engineering Manager . . . *P. E. Shanefelt* to Administrative Services Supervisor . . . *P. D. Starbuck* to Project Staff Engineer . . . At Camden, *D. H. Paxton* to Product Line Manager . . . *W. E. Whittington* to Project Engineer . . . At Navajo Facility, *A. B. Allen* to Manufacturing Supervisor . . . *E. M. Yazzie* to Quality Assurance Specialist.

Convair: *M. J. Aleshire* was promoted to Director, Advanced Program Planning . . . *P. A. Bergin* and *D. J. Powell* to Program Manager . . . *R. A. Betts, C. E. Sanford* and *T. I. Jaramillo* to Manufacturing Operations General Supervisor . . . *C. A. Brown, M. N. Delperdang, B. M. Hamlin, J. D. Huddleston* and *C. E. Thornton* to Manufacturing Control Operations Supervisor . . . *J. E. Clifton, J. L. Dooley, M. A. Dutcher, J. C. Gray, D. H. Knoell, W. R. Zupkas, N. L. Smith, C. Snyder, W. E. Witzell* and *P. S. Yip* to Group Engineer . . . *L. E. Cupp* and *K. H. Snyder* to Quality Assurance Supervisor . . . *J. O. Diaz* and *T. C. Smith* to Manufacturing Engineering Chief . . . *T. E. Dobyns* to Manufacturing Control Operations General Supervisor . . . *J. H. Hinton* to Financial Supervisor . . . *Richard Cassens* to Operations Supervisor-Manufacturing . . . *Ernest Gonzales* to General Supervisor, Material Stores/Salvage . . . *George E. Mavko* to Engineering Manager . . . *Manuel Montijo* to Operations Supervisor III-Manufacturing Control . . . *N. M. Johnson* to Manager of Estimating . . . *C. M. Keys* to Manager of Product Support . . . *D. E. Longwell* to Configuration Management Supervisor . . . *R. D. McKelvey* to Engineering Staff Specialist . . . *J. L. Medley-Brandt* to Chief of Estimating . . . *R. F. Mitchell* to Purchasing Agent . . . *A. W. Nelson* to Engineering Director . . . *L. R. Potter* and *B. L. Randall* to Logistics Supervisor . . . *R. D. Raines Jr.* to Logistics General Supervisor . . . *J. F. Serafin* to Senior Project Engineer . . . *N. R. Straub* to Quality Assurance Group Supervisor . . . *S. J. Sultany* to Engineering Chief . . . *D. G. Williams* to Director, Aircraft Assembly . . . *M. O. Wolske* to Plant Services Operations General Supervisor . . . At Western Test Range, *C. M. Flores* to Manufacturing Control Operations Supervisor.

Land Systems: *M. Kettelhut* was promoted to Business Planning Manager . . . *R. Renzi* to Program Finance Manager-M1 . . . *N. Grifka* to Program Finance Manager-M60 . . . *R. Wenskus* to Program Finance Manager-HMMWV . . . *R. Montague* to Subcontract Audit Manager . . . *J. Cauchi* to Subcontract Administration Supervisor . . . *D. Gray* to Labor Accounting Supervisor . . . *L. Grzegorzewski* to Payroll Supervisor . . . *R. Marko* to Marketing Operations Coordinator . . . *J. Czuchaj* and *G. Boyer* to Supplier Management Representative . . . *C. H. Lucas* to Hull Engineer . . . *M. Michel, V. Nizza, Paul Bauer* and *J. Kohler* to Product Design & Development Engineer C. . . . *O. Koivisto* to Configuration Change Coordinator B. . . . *T. Bohannon, D. Budai, R. Drouillard* and *E. Pinnick* to Logistics Engineer B . . . *M. Morris* and *M. McCurdy* to Quality Requirements Analyst B. . . . *S. Kakos* to Reliability Engineer C . . . *R. Bentley, P. Valcke* and *T. Maisano* to Electrical Systems Inspection Foreman . . . *G. Witkowski* to Electrical/Mechanical Instrument Analyst B . . . *R. Volbert* to Skilled Maintenance Foreman . . . *M. Urbanczyk* to Buyer B . . . *R. Kowalczyk* to Program Control Analyst . . . *M. Chupa* to Metrology Lab Supervisor . . . *M. J. Allen Jr.,* to Material Handling Foreman . . . *J. Salmon* and *P. Klein* to Quality Engineering Supervisor . . . *J. Vorraso* to Product Cost & Billing Supervisor . . . *T. Meyers* to Plant Security Sergeant . . . *J. Smith, J. Wallace,* and *A. Wojciechowski* to Final Acceptance & Inspection Foreman . . . *D. Verstrate, R. Patrone, C. Carion* and *A. Douglas* to Layout Inspection Foreman . . . *E. Duncan Jr., C. Sens* and *M. Law* to Machining Foreman . . . *M. Burns, J. Stroh, T. Murphy* and *C. Dumas* to Assembly Foreman . . . *D. Chagnon, E. Jeffries Jr., R. Cooley* and *N. Williams* to Vehicle Repair Foreman . . . *R. Koscak* to Heat Treat, Paint and Plating Foreman . . . *P. Prantera* to Welding Foreman.

Electronics: *Ray M. Trent* was promoted to Manager of Manufacturing . . . *J. C. Varga* to Associate Systems Analyst . . . *S. P. Congdon III, J. E. Kleinhans* and *D. K. Engbretson* to Engineering Manager . . . *J. N. Gresens* to Engineering Section Head.

Savings and Stock Investment Values

	June 1980	June 1981	June 1982
Salaried			
Government Bonds	$ 2.4811	$ 2.6307	$ 2.9708
Diversified Portfolio	1.8048	2.1383	1.9021
Fixed Income	1.0980	1.2161	1.3531
Hourly			
Government Bonds	2.4790	2.6279	2.9679
Diversified Portfolio	1.8413	2.1851	1.9413
GD Stock	$33.0625*	$32.3750*	$28.0000

* Reflects 2 for 1 stock split of November 1980.

Chicago Tour. *Material Service Corporation's M/V* Irving Crown *and two company barges were donated for Chicago's "Purple Heart Cruise" recently. The annual cruise, which dates back to 1945, treated more than 500 disabled and convalescing veterans from Chicago-area veterans' hospitals to a day-long cruise on the Chicago River.*

Material Service Donates Barges, Towboat to "Purple Heart Cruise"

More than five hundred disabled and convalescing veterans from area military and veterans' hospitals were treated to an enjoyable day recently aboard two brightly decorated Material Service Corporation barges. The *Chicago Sun-Times* newspaper, sponsor of the annual "Purple Heart Cruise," turned to Material Service for help when the Coast Guard was unable to provide its icebreaker *Mackinaw* for the annual event.

Pushed by the M/V *Irving Crown,* a towboat named for one of Material Service's founders, the lashed-together barges made their way through the downtown branch of the Chicago River as onlookers cheered. Festive red and white tents provided shelter from the sun and occasional morning showers. But the raindrops couldn't dampen the spirits of the many veterans who look forward to the cruise each year.

The GI guests were served breakfast, lunch and afternoon snacks while local entertainers and the Air Force Band provided lively music and comedy. Chicago area business organizations and individuals donated everything from food to souvenir items to make the veterans' excursion especially memorable.

Thousands of veterans have enjoyed the outings since the first "Purple Heart Cruise" in 1945.

Summertime Fun. *More than 10,000 picnickers streamed into Missile Park Sunday, July 18th for the annual Convair Family Fun Day. Toddlers, teens and adults had a variety of activities from which to choose. Bingo, horseshoes and golf for the adults; slides, swings and treasure hunts for the kids, and a myriad of games and special prize drawings for teenagers. It was a lucky day for Donna Sisk of Convair's Manufacturing Control Department. She used a silver dollar given to her by her mother to buy a ticket for the special adult drawing. It happened to be the winning ticket for the Grand Prize — a 1982 Ford Escort.*

Space Lesson. *During a recent visit to Convair, Daniel Weber (right), a high school student, is shown an Atlas launch vehicle by Rudy Romero, Marketing Manager, Space Systems. Weber was brought to San Diego to check progress on the animal enclosure module being built to take his student experiment into space on the Space Shuttle.*

Lewis Discusses GD Progress At Electronics Management Club

More than 700 members and guests of the Electronics Division Management Association heard General Dynamics Chairman and Chief Executive Officer David S. Lewis describe the strengths of the corporation and the challenges and opportunities that lie ahead.

Speaking to the group July 29th at the Sheraton Harbor Island Hotel, Lewis said, "This is an enormously strong corporation, highly diversified and quite changing. We continue to be able to stand up and support our divisions in a very difficult economic and competitive environment."

The chairman, who earlier in the day reviewed programs at Electronics, called the F-16 AIS the backbone of its product line "that could not have happened at all without the superb performance of the F-111 equipment before that."

Lewis commented on the missile-firing monitor system for the Trident submarines and the complex loading and unloading system designed and built by Electronics for liquefied natural gas tankers built by Quincy Shipbuilding. "These tankers," he said, "are operating day in and day out and have proven to be the most reliable liquefied natural gas transportation system in the world."

He said Electronics has had growing pains, but that it is now getting the necessary equipment and engineering facilities in place, referring to the division's new engineering building.

"I feel very strongly now about this division. There certainly is no question that it has come of age and is a great and important and very significant part of our company," he said.

Concluding, Lewis said, "Our challenge is not to make people work hard. I think people work very hard if we give them the tools, give them the understanding of the job. We have the strengths, but we certainly have to start thinking about creative and better ways to do what we're doing and helping our fellow workers do a better job. The challenge is ours."

Student's Arthritis Experiment In Space Is Aided by Convair

Convair is an industry sponsor of one of 10 high school students from across the nation involved in a joint NASA-National Science Teachers Association program to encourage interest in science. As a part of the program, each of the selected students will have a scientific experiment flown on the Space Shuttle.

Daniel Weber of New York City is being assisted in his experiment to determine the effects of weightlessness on arthritis. He was first interested in this subject when he noted that his grandfather, who suffers from arthritis, obtained some relief from swimming and hydrotherapy.

The student experiments are normally carried into space in the storage locker area of the Shuttle. Convair's part is the design and fabrication of an animal holding and life support system that can be installed in one of the storage locker drawers which will accommodate four to six laboratory rats.

Weber's experiment is due to be taken into space aboard the seventh Shuttle mission next spring. Shortly before the launch, selected animals will be given an injection which induces arthritis, and during the mission, their movements will be compared with those of healthy animals also in the Shuttle, and with similarly treated animals on the ground. From this information, Daniel hopes to discover whether the weightlessness of space has the same beneficial effects on movement that earth-bound sufferers gain from swimming.

"We know that people with arthritis benefit from swimming and hydrotherapy, because bouyancy relaxes muscles and joints," Weber said. "There is also the aspect that in weightlessness, the astronauts have lost calcium, and many arthritis victims have an increase in calcium deposits. Either aspect is worth study."

Tom Kessler, Advanced Space Programs, has been Convair's project engineer for the design and fabrication of the animal holding system. He describes it as a completely self-contained unit that will provide atmosphere, food and water, and waste disposal for the animals, with a Plexiglas top so the animals can be observed in the weightless environment.

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Grinder Receives $2,400 for Mill Sharpening Idea

Bryan Barbieux, a Tool and Cutter Grinder at Convair's Air Force Plant 19, has received a $2,400 Employee Suggestion Award for recommending a change in the way that end mill cutters were sharpened.

In his suggestion, Barbieux noted that it was a company standard to put a 20-degree secondary, or chip relief, edge on the mills. However, new mills were delivered with 15-degree secondaries, and Convair's sharpening standard was causing considerable additional work and time to remove the additional metal. Barbieux suggested adopting the 15-degree edge.

First year savings on Barbieux's suggestion were estimated at $24,131.

For the first half of 1982, Convair has had 1,788 Employee Suggestions submitted, and has made 457 awards. Of the awards made, 278 of those were cash awards, and 179 employees have chosen to receive their awards in merchandise.

Old Gives Way to New As Convair Continues Expansion at Two Sites

Convair's facilities in San Diego are in the midst of a major expansion and modernization program, with new construction at both Lindbergh Field and Kearny Mesa plants.

The major part of the work is being done at Lindbergh Field, where 13 old buildings are being torn down and four existing buildings are being expanded. When the project is completed, there will be a net gain of 268,800 square feet of operating space.

The Lindbergh Field project will allow Convair to consolidate its machine shop and sheet metal fabrication, tool manufacturing, painting and certain warehousing and assembly functions.

At the Kearny Mesa plant, a new two-story building is to be built just south of the building now housing Space Programs management. The new building will be identical to its neighbor, and will be occupied by research and engineering personnel now in other buildings.

Commenting on the expansion program, Ken Lake, Convair Vice President-Operations, said, "It is vital that we have a high quality and centralized manufacturing facility to support our increasing production demands for cruise missiles, space launch vehicles and aircraft structures and to enhance our productivity improvement opportunities."

According to Jack Kenna, Director of Facility Improvements, many of the buildings being demolished at Lindbergh Field date from the early days of Convair's operation in San Diego, before and during World War II. They were put up in a hurry, and their size and location no longer fit the company's needs.

In addition to the building program, the company plans to begin an eight-year comprehensive renovation program for the Lindbergh Field, Kearny Mesa and the Harbor Drive facilities to upgrade the appearance of these plants and insure the most economic operations through energy conservation and environmental control efforts.

* * *

Lindbergh Field Expansion Work Interrupted by Mysterious Blocks

When work began on Convair's Lindbergh Field expansion project, it seemed like a straightforward job; tear down 13 old buildings and put up additions to four others.

There would be problems, certainly, but none was expected that the contractor, Dunphy Construction Company of San Diego, had not faced before. Electrical and telephone cables had to be rerouted, along with plumbing and compressed air lines. Most of the buildings were of World War II-vintage, and some of the drawings might be out of date.

Then, on July 7th, members of a crew grading for the foundation of the Building One addition struck something hard. The more they dug, the bigger an obstacle it became.

Finally, a huge concrete block was exposed, nearly eight feet long and wide, and eight feet thick! In the next few days, three more of the huge concrete blocks were found.

It took workmen four days to break the blocks up into pieces small enough to load on trucks for disposal.

Old-timers at Convair recalled when the blocks were put in — during World War II to be used as tie-downs for barrage balloons to defend the plant against enemy bombers. It has been estimated that there could be as many as 32 tie-downs scattered throughout the 100-acre plant site.

Of course, the enemy bombers never came, and the old tie-downs were eventually paved over.

Holt Calls for Naval Strength At Baltimore Commissioning

A member of the House Armed Services Committee believes that the free world's security rests on the nation's "determination to rebuild the deterrent strength of our Navy fleet."

Speaking at commissioning ceremonies for the 688-class fast-attack submarine *Baltimore* at the Submarine Base in Groton, Conn., recently, Representative Marjorie Holt, Republican of Maryland, called the Navy "the first line of defense" and said that the submarine would "join the cause of peace."

Rep. Holt, who is also the sponsor of the sub, Electric Boat's 12th in the class, said World War II erupted "because the U.S. and her allies were vulnerable.

"Those of us who have learned the lessons of history," she continued, "know that the hope of avoiding World War III lies in the military strength of the U.S. and her allies."

Holt also spoke about the importance of unencumbered commercial sea lanes. "The sea lanes are our very lifeline, and we must have the naval strength necessary to prevent those lifelines from being cut."

Electric Boat General Manager Fritz Tovar, representing the company, remarked that *Baltimore* "is one of the finer ships we have built. We have done our part," Tovar said to the submarine's skipper, Capt. Michael Bradley. "The ship is yours. She will serve you and your nation well. Smooth sailing!"

Capt. Bradley, in putting the ship in commission, called his boat "the newest and most capable antisubmarine warfare platform in the fleet."

Others who spoke at the July 29th ceremony at the base's lower pier area were Senator Charles Mathias Jr., Republican of Maryland, and Baltimore Mayor William Shaefer.

Following the ceremony, about 800 dignitaries and guests, including the *Baltimore's* crew and family members, enjoyed a buffet of Maryland delicacies shipped to Connecticut for the occasion.

Electric Boat has 10 sister ships of the 360-foot 6,900-ton *Baltimore* under construction, plus eight Trident missile-firing submarines.

Campaign Launched To Benefit Widows Of USAF Personnel

David S. Lewis, Chairman and Chief Executive Officer of General Dynamics, will serve as central regional chairman of a newly launched campaign to raise more than $10 million to benefit widows of U.S. Air Force enlisted men.

The campaign is aimed at financing construction of a 256-unit apartment complex in Fort Walton Beach, Fla., for widows of Air Force enlisted men. "The objective of this worthwhile project is to provide a measure of comfort and financial security to the wives of Air Force enlisted men who have served our country," Lewis said.

The apartment complex, to be built by the Air Force Enlisted Men's Widows Home Foundation, Inc., will be named Bob Hope Village to recognize the comedian's more than 40 years of service to the military.

The campaign was announced by Harry J. Gray, Chairman and Chief Executive Officer of United Technologies Corporation. Gray heads a fund-raising committee of aerospace executives that includes Lewis, Roy A. Anderson, Chairman and Chief Executive Officer of Lockheed Corporation; and Donald R. Beall, President and Chief Operating Officer of Rockwell International Corporation.

The Air Force Enlisted Men's Widows Home Foundation is a nonprofit organization founded in 1968.

Charlottesville, Va. Unit Changes Name

The name of the General Dynamics telephone manufacturing unit at Charlottesville, Va., has been changed to General Dynamics Telephone Systems Center. It was formerly known as the Telephone Systems Center of Stromberg-Carlson Corp.

The name change follows the recent acquisition by United Technologies Corporation of two other operating units of Stromberg-Carlson previously owned by General Dynamics.

Ship Writeoffs Result in Loss In 2nd Quarter

Continued from Page 1

which we believe will have a positive impact on operating results over the long term," Lewis said.

The resources and building products group showed improvement in the 1982 period compared with the second quarter of 1981 when the nationwide coal miners strike resulted in a substantial loss at Freeman United Coal Mining Company.

"Prospects for the aerospace group which had record earnings in the second quarter continue to be very bright," Lewis said.

"There have been several important government decisions during recent weeks that will have positive impacts on future business and we successfully met a number of key milestones on several high technology programs.

"At Fort Worth, the F-16XL, an advanced version of the F-16 incorporating a new aerodynamic configuration, is off to a fine start," Lewis said. "Since its first flight on July 3rd, the F-16XL test program has moved at a fast pace with 22 test flights by four U.S. Air Force and two company pilots having been carried out. The pilots are very favorably impressed by the aircraft's performance and flight characteristics demonstrated to date."

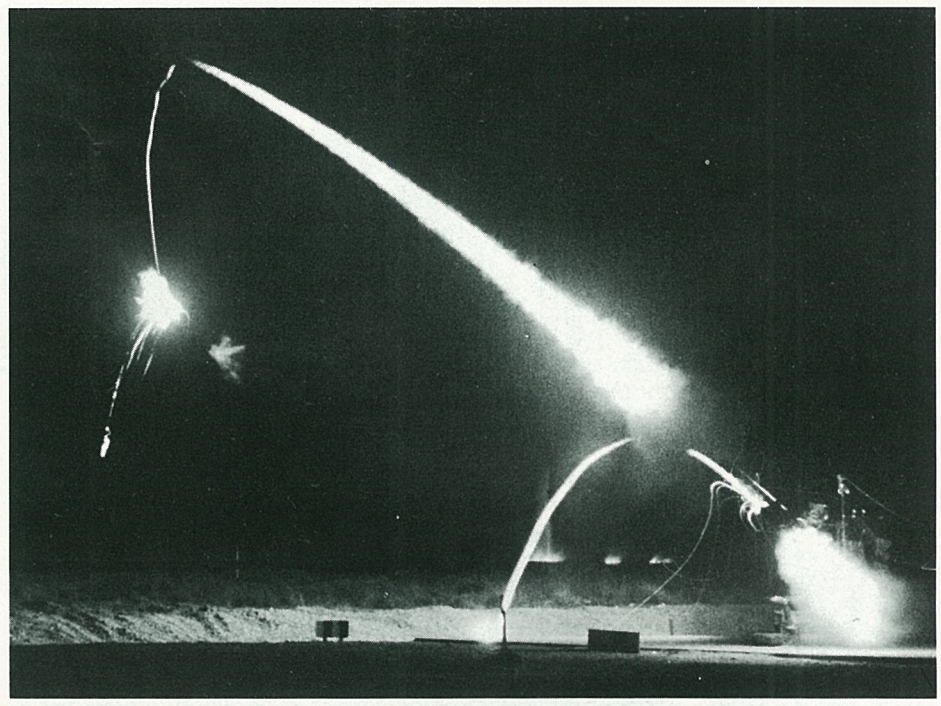
Production deliveries of the standard F-16 Falcon continued on cost and on schedule at the assembly plants in Fort Worth, the Netherlands and Belgium. Through June 30th, 723 Falcons had been delivered to the air forces of seven countries.

"At Convair," Lewis said, "the recent government decision to select Centaur as the high energy upper stage for the Space Shuttle will extend the division's important space business into the next decade. The initial award, valued at more than $200 million, calls for a new wide-body version of Centaur to launch the Galileo and International Solar Polar missions from the Shuttle in May 1986. The Shuttle/Centaur combination will also have the performance required to meet a number of high priority Air Force requirements."

Production of Convair's Tomahawk cruise missile moved forward with the recent award of an $80 million contract covering 25 antiship and 25 land-attack Tomahawks for the Navy and seven ground-launched cruise missiles for the Air Force.

At Pomona, Lewis said, there has been increased interest in the division's line of modern ship defense systems, particularly the Phalanx, a radar-directed gun system, and RAM, a lightweight, high firepower missile system designed specifically to destroy low-level attacking antiship missiles. New orders for Phalanx have been placed by Australia, Great Britain and Japan.

During the quarter, Land Systems delivered 96 M60 and 125 M1 Abrams main battle tanks. This brings to over 500 the number of M1 Abrams tanks that have been delivered to the U.S. Army. In June, the division was awarded an exclusive development contract valued at $12.8 million to design and build the test bed for the U.S. Army's advanced main battle tank for possible introduction in the mid-1990s.



Night Firing. *Demonstration of the at-night capability of Pomona's Multiple Stinger Launcher (MUSL) resulted in a direct hit on a QH-50 subscale drone helicopter at Fort Bliss, Tex. The MUSL, which utilizes an optical sight and an infrared tracking device to provide a night and inclement weather capability for the Stinger missile, was mounted on an M-55 towed trailer. Because of its light weight, the tactical version of the MUSL is adaptable to different types of towed, wheeled or tracked vehicles.*

Tomahawk Submarine Vertical Launch System Demonstrated

A prototype of the system that will be used for the vertical launch of U.S. Navy/General Dynamics Tomahawk cruise missiles from submarines was successfully demonstrated at San Clemente Island, California, on August 6th.

A capsule launching subsystem was used to eject a Tomahawk from an underwater submarine simulator tube. The missile then successfully made the transition from vertical flight to cruise flight. Powered by its air-breathing turbofan engine, the missile flew a race track course on the Pacific Missile Test Center's Sea Test Range and was later recovered on San Clemente Island. All test objectives were met.

The test was part of the development program for deploying Tomahawks in a vertical launch system on SSN 688-class attack submarines. The submarines will be fitted with 12 vertical Tomahawk launch tubes in the forward main ballast tanks. This installation will significantly increase the weapon loadout of these ships while maintaining their missions and capabilities. Initial operational capability of the vertical launch system is scheduled for 1986.

Electric Boat will modify existing 688-class submarines for vertical launch of Tomahawks. The capsule launching system used in the August 6th test was built by Westinghouse Electric Corporation of Sunnyvale, Calif. The launch tube assembly simulates the tubes that will be installed in submarines and was built by Convair.

EB's Ultra-Image Test Equipment Used on Oil Wells

Electric Boat's newest commercial venture, its nondestructive test technical development department, recently completed a major testing job of equipment in an oil field.

Four department personnel, using the Ultra-Image recording system developed at EB, inspected 140 valves on well heads in an Alaskan oil field for a major oil company.

Ultra-Image, a portable pulse-echoing device, allowed the group to complete the job in 11 days without taking the valves apart and while oil continued flowing through the heads.

Before the development of Ultra-Image, such inspection required shutting down a well and breaking the valves down.

Electric Boat unveiled Ultra-Image in April 1980, and it immediately generated interest from the oil and gas, electric power, heavy vehicle and machinery manufacturing industries.

Army Aviation Graduates Sought

One of the members of General Dynamics' Board of Directors, Earl D. Johnson, is leading a drive to locate old-time U.S. Army aviators for a 50th anniversary reunion to be held in San Antonio, Tex., Oct. 14-15.

The reunion will bring together the first class of cadets to enter the U.S. Army Primary Flying School at Randolph Field, Tex., in 1931. The event is to commemorate the winning of their wings upon graduating on Oct. 14, 1932.

Johnson said that alumni of the class include 40 to 50 major generals and at least one four-star general, but that the reunion committee is still trying to locate some cadets and student officers of the class for whom it has no current addresses.

Main speaker for the event will be James M. Beggs, former General Dynamics Executive Vice President-Aerospace and now Administrator of the National Aeronautics and Space Administration.

Johnson, who was named Under Secretary of the Army in 1952, joined General Dynamics as a Senior Vice President in 1955 and served as President from 1959 to 1962. Now a business and financial consultant, he has been a member of the Board of Directors since May 1971.

Golden Eagle. *General Dynamics Board Member Earl D. Johnson is shown 50 years ago after completing a solo flight as a member of the first class of cadets to enter the U.S. Army Primary Flying School at Randolph Field, Tex., in 1931. The plane is a Consolidated Aircraft PT-3 Husky.*

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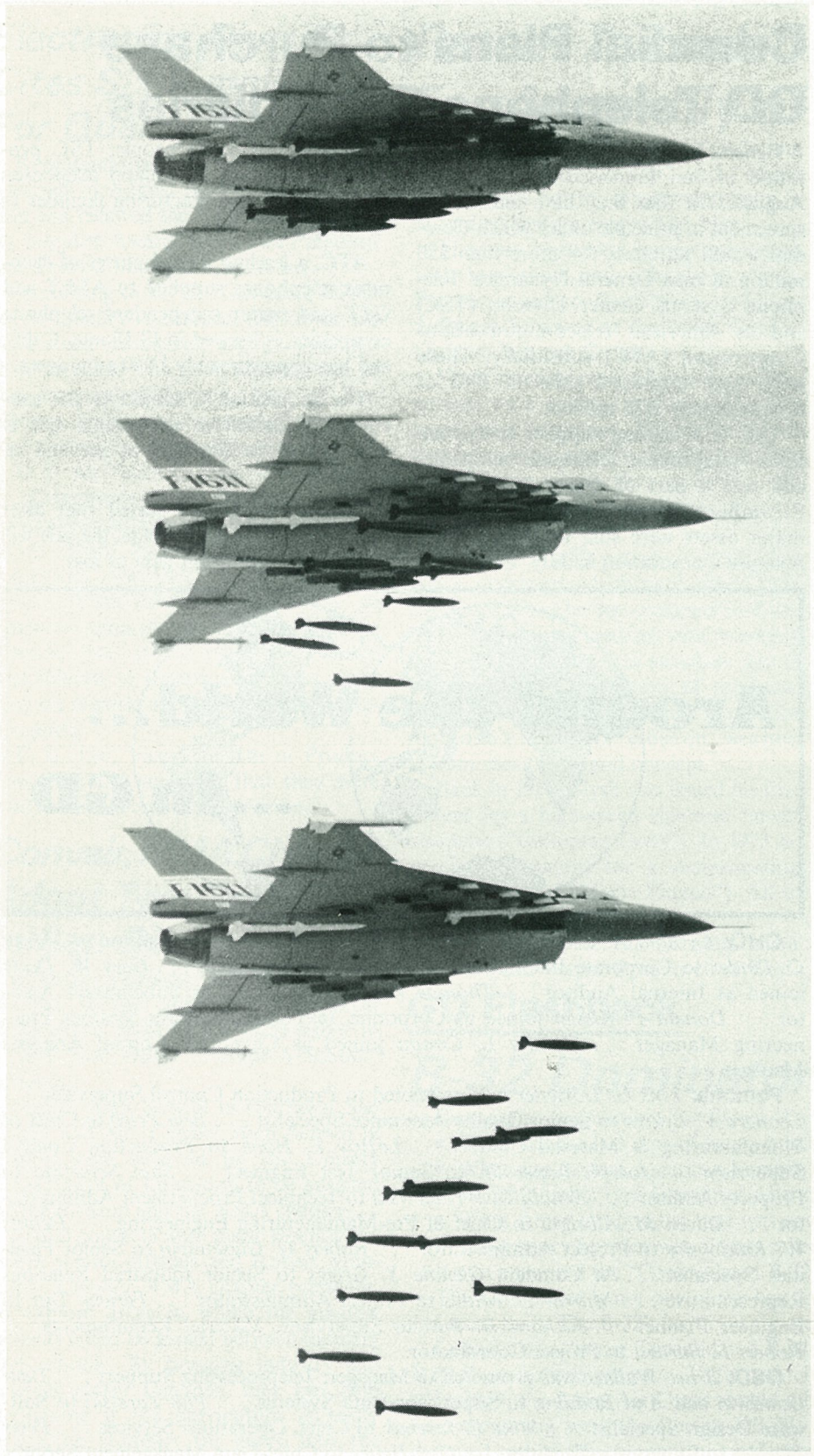


Clean Separation. *Twelve 500-pound bombs are released from the F-16XL flying at 13,000 feet at more than 500 miles an hour over a bombing range in California.*

F-16XL Flight Testing Program Is On Target at Edwards AFB

Testing of the evolutionary F-16XL is running ahead of schedule and "is going extremely well," according to Fort Worth's Harry Hillaker, Vice President and Deputy Program Director for the aircraft.

Since its first flight July 3rd, the F-16XL has made 43 test flights for a total of 49 hours, most of them at Edwards AFB, Calif., site of the U.S. Air Force's Flight Test Center. The aircraft was flown 38 times in the first 31 days after it was ferried to Edwards.

The F-16XL was returned to Fort Worth in late August for the installation of a spin chute and for some heavy load ground vibration tests. Evaluation is to be resumed at Edwards later this month.

The principal difference between the F-16 and the F-16XL is the distinctive cranked arrow wing. Two plugs, totalling 56 inches,were also added to increase the length of the F-16XL's fuselage.

"The fact we were able to fly 16 times in the first nine days at Edwards is a good reflection of the commonality with the already proven F-16," Hillaker said. "The cockpit is the same, the systems are the same and the pilots are doing a great job. The parts that we have changed have not affected the readiness."

Seven pilots, five from the USAF and two from Fort Worth, have flown the aircraft. They report that the F-16XL has excellent handling characteristics and that there is little degradation in those qualities when fully loaded.

Shortly before the F-16XL was returned to Fort Worth, the first aerial test of the aircraft's weapons release system was made. Twelve 500-pound bombs — close to the payload of a World War II B-24 bomber — were dropped from 13,000 feet over a California range.

"It was the cleanest separation from external carriages that I have ever seen," Hillaker said. The bombs were released as the F-16XL was flying more than 500

Continued on Page 2

Navy Awards Quincy Cargo Ship Charter

The U.S. Navy has announced it plans to award General Dynamics charter contracts for two maritime prepositioning ships (TAKX). The Navy holds options for charter contracts for three additional ships of the same type, with exercise of these options being anticipated by the end of 1982.

See Artist's Concept Page 2

Under the terms of the $272.6 million charter agreement, General Dynamics will own the ships and charter them to the federal government. The contract includes the first five years' charter, and includes options for follow-on periods.

The contract for the 670-foot vessels is subject to congressional approval.

The ships derive their name from their

Continued on Page 2

David S. Lewis 1982 Recipient Of Guggenheim Medal Award

David S. Lewis, Chairman and Chief Executive Officer of General Dynamics, received the Guggenheim Medal for 1982 in ceremonies in Seattle, Wash., on August 25th.

Lewis was selected for the award for his "longstanding contribution to aviation and national defense and his untiring efforts toward the development of superior aircraft."

The Guggenheim Medal

The Guggenheim Medal is an international award honoring persons who have made great achievements in the advancement of flight. It also commemorates the personal encouragement and support given by Daniel Guggenheim to the development of flight, from 1925 until his death in 1930.

The presentation to Lewis was made at the Aircraft Systems Technology Meeting of the International Council of the Aeronautical Sciences and the American Institute of Aeronautics and Astronautics. The annual selection is made by the Guggenheim Medal Board of Award in New York.

Orville Wright received the first Guggenheim Medal in 1929. Among the other Medalists are William E. Boeing, Donald W. Douglas, James H. Doolittle, Charles A. Lindbergh, Glenn L. Martin, Leroy R. Grumman, Igor I. Sikorsky and James S. McDonnell.

The presentation of the gold medal to Lewis was made by Dr. Dorothy M. Simon, Vice President, Research, for Avco Corporation, Greenwich, Conn.

Dr. Simon said that Lewis "not only has made these outstanding contributions to aviation, but he also holds the unyielding belief in the future of aviation that motivated so many of the Medalists and Daniel Guggenheim himself."

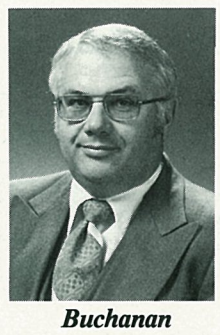
Lewis, who was President and Chief Operating Officer of McDonnell Douglas, before coming to General Dynamics in 1970, was closely associated with the development of several aircraft including the McDonnell F-4 Phantom, and later the General Dynamics F-16 Falcon.

Lewis Honored. *Dr. Dorothy M. Simon, Vice President, Research, for the Avco Corp., presents David S. Lewis with the certificate that accompanies the Guggenheim Medal Award.*

A.M. Lovelace and L.F. Buchanan Named to Key Corporate Positions

Dr. Alan M. Lovelace, General Dynamics Corporate Vice President - Science and Engineering, has been named Corporate Vice President - Productivity and Quality Assurance, and Dr. Leonard F. Buchanan, Vice President and General

Lovelace



Buchanan

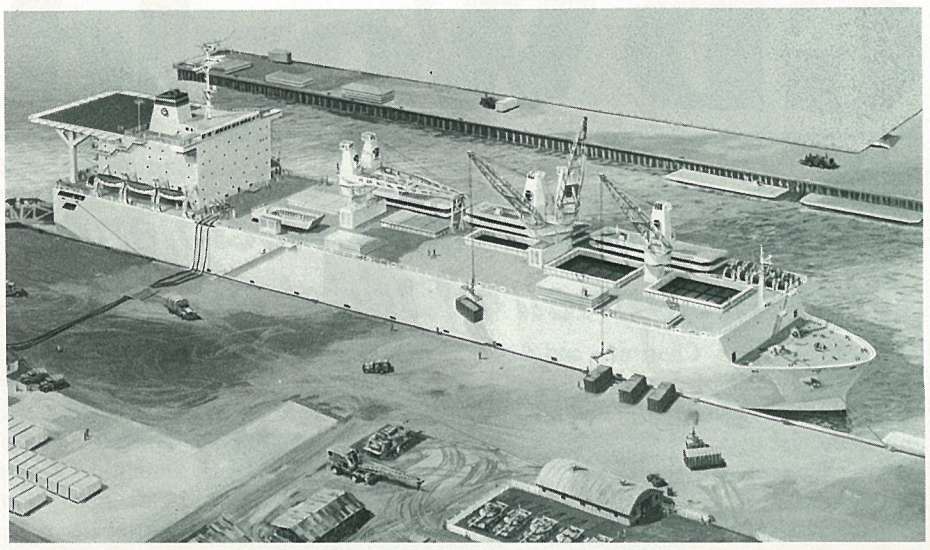
Manager of Convair, has been named Corporate Vice President - Engineering and Program Development. For the time being, Richard E. Adams, Corporate Executive Vice President - Aerospace, will serve as General Manager of Convair.

"These corporate appointments are a further step in our ongoing program to strengthen the technical capabilities of all General Dynamics operations and reflect the company's determination to achieve the highest standards of productivity and quality assurance," said David S. Lewis, Chairman and Chief Executive Officer.

In his new position, Dr. Lovelace succeeds Lyman C. Josephs, who is retiring. "In his more than 15 years with General Dynamics, Lyman Josephs has made many significant and lasting contributions to the success of the company," Lewis said. "We wish him great happiness in his retirement as well as success in any future endeavors he may undertake."

Before joining General Dynamics, Dr. Lovelace had served as Acting Administrator of NASA. He joined NASA in 1974 as Associate Administrator for the

Continued on Page 2



Quincy Contract: *The U.S. Navy has announced plans to award General Dynamics a firm charter contract for two maritime prepositioning ships similar to the one shown in the artist's concept above. The ships would be constructed at Quincy Shipbuilding.*

Quincy Receives Ship Charter

Continued from Page 1

function — they will be "prepositioned" overseas and will provide immediate sealift support for the recently formed Rapid Deployment Force in case of international crises.

Each of the ships, dubbed TAKX by the Navy, will be loaded with military equipment, vehicles, fuel and supplies to support operations of amphibious brigades.

Quincy will construct the ships at an average price of $154 million each. The firm two-ship contract award would increase Quincy's backlog by $308 million, and if the options for added ships are exercised, the five-ship contract award would increase Quincy's backlog by $770 million.

The five-ship program will provide Quincy with approximately 6,000 man-years of work in the years 1983 through 1986. Peak employment will be approximately 4,400 people compared to the present level of 3,000.

This award followed two years of intensive design and development effort and is a significant breakthrough in re-establishing Quincy as a builder of auxiliary ships for the Navy.

F-16XL Flight Testing Program Is On Target at Edwards AFB

Continued from Page 1

miles per hour, at intervals of 50 milliseconds. The final bomb was released from the semi-conformal pod just six-tenths of a second after the first. They landed on target in an area not much larger than a small house.

"The flight test and evaluation program is also on target, and we are meeting or exceeding our predictions," he said.

Plans call for the single seat F-16XL and the two-seat model that will first fly in October to be flown about 240 times between now and next May.

"Because we have been able to get so many flights in already, we are about a month ahead of the successful schedule maintained during the YF-16 test program in 1974," Hillaker said.

The new wing on the F-16XL has more than twice the area of the wing on the standard F-16. It, and the longer fuselage, enable the F-16XL to carry over 80 percent more fuel internally, giving the aircraft a substantially greater combat radius and weapons carrying ability.

Normally, the basic F-16 carries two AIM-9 heat seeking missiles and six bombs when configured for an air-to-surface mission.

In addition to carrying the 12 bombs, the F-16XL routinely flies with two AIM-9 missiles and with four Advanced Medium Range Air-to-Air Missiles.

The basic F-16 has nine stores stations for weapons loading, while the F-16XL has a weapons carriage system that provides 17 stores stations beneath the graphite composite wings and aluminum fuselage.

Executives Appointed to Key Positions

Continued from Page 1

Office of Aeronautics and Space Technology and was named Deputy Administrator in June 1976. Prior to his NASA service, Dr. Lovelace over a period of 20 years held a number of increasingly important research management positions with the U.S. Air Force, including Principal Deputy Assistant Secretary of the Air Force for Research and Development from 1973 to 1974.

Born in St. Petersburg, Fla., in 1929, Dr. Lovelace received his Bachelor of Science, Master of Science and a Ph.D in chemistry from the University of Florida.

Dr. Buchanan joined the company in January 1956 as a dynamics engineer. During 21 years at Pomona, he held a number of increasingly important assignments. He served as Vice President - Research and Engineering from 1970 to 1973 and as Vice President and General Manager from 1974 to 1977, when he was named Vice President and General Manager of Convair.

Born in Arion, Iowa, in 1932, Dr. Buchanan received his Bachelor of Science, Master of Science and Ph.D in engineering from the University of California at Los Angeles.

Savings and Stock Investment Values

	July 1980	July 1981	July 1982
Salaried			
Government Bonds	$ 2.4762	$ 2.6184	$ 3.0351
Diversified Portfolio	1.8771	2.1407	1.8749
Fixed Income	1.1072	1.2274	1.3659
Hourly			
Government Bonds	2.4742	2.6154	3.0325
Diversified Portfolio	1.9151	2.1875	1.9129
GD Stock	$36.5625*	$28.7500	$29.5000

* Reflects 2 for 1 stock split of November 1980.

Comdial Plans to Purchase GD Telephone Subsidiaries

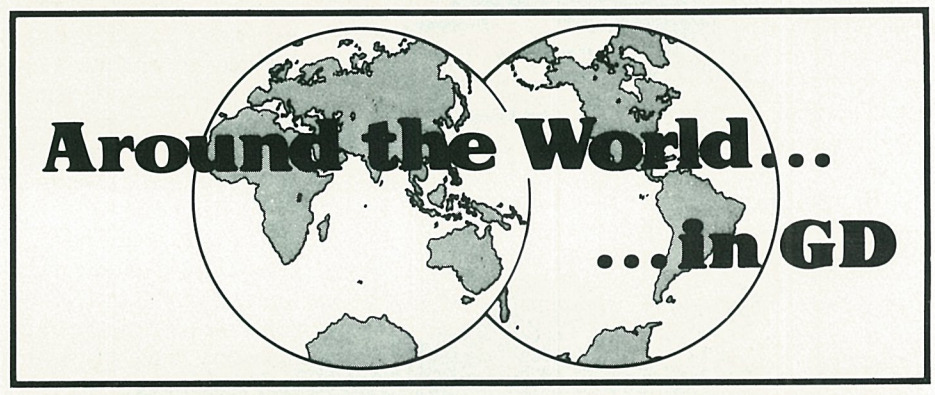
General Dynamics and Comdial Corporation of San Francisco announced on August 17th that they have reached an agreement in principle under which Comdial would purchase for more than $50 million in cash General Dynamics' Telephone Systems Center Division (TSC) and its American Telecommunications Corporation (ATC) subsidiary. These units had combined sales in 1981 of approximately $125 million.

TSC is a leading supplier to the nation's independent telephone companies and was a part of General Dynamics' Stromberg-Carlson subsidiary whose major assets were sold to United Technologies Corporation in July. Employing approximately 1,450 people, TSC produced more than 1.5 million telephones in 1981 at its manufacturing facilities in Charlottesville, Va.

ATC, a leading manufacturer of decorator telephones supplied to AT&T and GTE and major independent telephone companies, is located in El Monte, Calif., and has approximately 1,050 employees.

The acquisition is subject to the execution of definitive agreements and is expected to be finalized at the end of September.

General Dynamics stated that after consideration of tax benefits, the sale will result in no significant gain or loss.



CHQ: *Cynthia A. Croft* was promoted to Supervising Senior Auditor . . . *Mary C. Linder* to Corporate International Personnel Administrator . . . *Gary W. Dody* joined as Internal Auditor . . . *Thomas W. Murphy* joined as Subcontract Auditor . . . *Donald P. Kissler* joined as Corporate Telecommunications Systems Engineering Manager . . . *Marsha L. Cmunt* joined as Corporate Capital Analysis Manager.

Pomona: *Lois G. Hostetler* was promoted to Production Control Supervisor . . . *Leonard V. Lykins* to Senior Quality Assurance Specialist . . . *Bela Petro* to Chief of Manufacturing & Material Control . . . *LeRoy F. Hook* to Production Control Supervisor . . . *Joseph Lopez Jr.* to Senior Test Engineer . . . *Sam Sciortino* to Property Auditor . . . *Arnold G. Wroblewski* to Technical Procurement Administrator . . . *Steven M. Albright* to Chief of Pre-Manufacturing Engineering . . . *Dennis W. Kuklovsky* to Project Administrator . . . *Robert G. Glasemann* to Senior Facilities Specialist . . . At Camden, *Glendle Y. Griggs* to Senior Industrial Relations Representative . . . *Murray D. Mullis* to Project Administrator . . . *Perlene Tate* to Engineer Planner . . . *Richard D. Butt* to Supervisor, Material Requirements . . . *Robert L. Burnett* to Project Coordinator.

DSD: *Bruce Wallace* was promoted to Manager, Teleprocessing Support . . . *Dave Goodwin* and *Ann Budding* to Supervisor-Data Systems . . . *Phil Zaretski* to Software Design Specialist . . . *Mike E. Jasenak* to Chief, Operations Services . . . *Peter Mercier* to Supervisor-Facilities . . . *Guy Henry* to Chief-Data Management Services . . . *Paul M. Cofoni* to Director-CAD/CAM . . . *James J. Coney* to Manager-Management Planning & Analysis . . . *James R. Devlin* to Manager-Operations Services . . . *Ralph D. Fragola* to Director-Computer Services . . . *James R. Guidry* joined as Manager-Accounting . . . *Edwin E. Grain* joined as Senior Programer/Analyst . . . *William Moncrief* to Chief-Operations Services.

Quincy: *Alfred Hall* was promoted to Chief of Engineering Administration . . . *Michael Guidice* to General Foreman-Pipefitting . . . *Philip Von Iderstein* to Foreman-Pipefitting.

DatagraphiX: *Robert C. Metzger* was promoted to District Sales Manager . . . *Arthur Matos* to Senior Production Scheduler . . . *Richard M. Okerholm* to Systems Analyst.

Electric Boat: *Joseph McKeehan* was promoted to General Foreman . . . *Edward Sirois* to Senior Field Engineer, Reactor Plan Services . . . *Judith Legare* to Administrative Control Coordinator . . . *John Wulforst* and *Frank Muraco* to Foreman . . . *Jeffrey Fox* to Nuclear Test Supervisor . . . *James McGill* to Chief Engineer.

Avenel: *Joseph Vanore* and *Joseph Paluzzi* were promoted to Foreman II.

Land Systems *R. A. Angermeier* was promoted to Director-Labor Relations . . . *J. Bulat* to Manager of Management Information Systems . . . *M. VonRosen* to Technical Administration Document Supervisor . . . *J. McMannis* to Fire Protection Engineering Supervisor . . . *M. Jones* to Office Services Unit Supervisor . . . *W. Babbitt* to Buyer A . . . *P. Yauk* to Program Analyst . . . *D. DeBusscher* to Experimental Fabrication & Build Up Supervisor . . . *M. Seiler, D. Duszka* and *K. Danielson* to Product Design & Development Engineer C . . . *S. Pernal* to Electro Mechanical Instrumentation Analyst B . . . *D. Kaczkowski* to Management Information & Control Analyst . . . *R. Urban* to Pricing Analyst B . . . *O. Montes* to Fabrication & Assembly Foreman . . . *R. Moxley* to Product Design & Development Supervisor . . . *D. Dagnostino* and *E. Paddock* to Logistics Engineer B . . . *M. McCarthy* to Reliability Engineer C . . . *C. Kniffen* and *R. Vensel* to Machine Repair Supervisor . . . *G. Hall* to Government Security & Plant Protection Chief . . . *G. Goodwin* to Captain, Plant Protection . . . *R. Hinders* and *C. Raymont* to Welding General Foreman . . . *G. Osgood* to Welding Foreman . . . *T. Howell* to Layout and Receiving Inspection Foreman . . . *Keith L. Knisley* transferred from St. Louis and was promoted to Telecommunications Manager.

Fort Worth: *M. K. Baswell, T. R. Bonner, J. L. Crawford* and *M. E. McDade* were promoted to Manufacturing Control Supervisor . . . *C. A. Brock* to Program Estimator . . . *G. E. Cole* and *R. D. Ragsdale* to Chief of Logistics . . . *M. L. Farrar, M. A. Smith* and *W. W. Pound* to Inspection Supervisor . . . *W. D. Feild, M. S. Milton, E. P. Morris* and *D. R. Tow* to Senior Program Analyst . . . *M. R. Funderberg* to Field Operations Supervisor . . . *B. J. Gazzola* to Manufacturing Technology Engineering Specialist . . . *C. W. Glover* to Manager of Plant Engineering . . . *B. E. Haseloff* to Material Stores Supervisor . . . *J. A. Holloway* to Industrial Engineering Specialist . . . *J. A. Horton* to Industrial Engineering Supervisor . . . *H. C. Jenkins* and *J. W. Shattuck* to Logistics Supervisor . . . *K. A. Kelso* to Engineering Administrative Group Supervisor . . . *E. C. Knight* to Superintendent . . . *T. A. Lindsay* to General Foreman . . . *J. W. Luckie* to Senior Engineering Planner . . . *G. W. Lockwood* and *J. L. Phipps* to Contract Representative . . . *W. K. Maddox* to Manager of Logistics . . . *E. R. Mann* and *M. A. Schilleci* to Logistics Engineer.

Electronics Division Cites Six Suppliers For Quality Work

Representatives of six companies were honored in August by Electronics Division and received the "Outstanding Quality Supplier Award" from Vice President and General Manager F. F. Jenny.

According to R. H. Nicholson, Director of Quality Assurance, five of the six were small businesses, and all provided their products with Zero Defects. One of the companies, Xentek, Inc., of San Marcos, Calif., was honored for the second consecutive six-month period.

U. S. Air Force Colonel Jesse J. Bass, Jr., Commander of the Defense Contract Administration Services Plant Representative Office at Electronics, said that American industry" . . . must think about competition from the world" in weapons systems. He praised the suppliers for their quality work, citing figures that billions of dollars were spent every year on rework, repair or scrap of defective parts.

F. R. Lee, Vice President of Production, told the suppliers that they were vital to the success of the division.

Convair, NMA Chapter Adopt Two Schools In San Diego Area

Convair Division and the Convair chapter of the National Management Association (NMA) are cosponsors in a new San Diego "Adopt-A-School" program.

Morse High School in southeast San Diego and Mt. Carmel High School in Poway were selected by the County Department of Education to be adopted by the division and the NMA chapter.

Initial contacts were made recently between school officials and Robert Montague, Convair NMA chapter president, to explore areas in which the greatest benefits could be gained between industry and schools. By bringing industry and schools closer together, they can help determine if the curriculum is really preparing students for entry into the workforce.

The Management Association will also provide speakers for science, mathematics, chemistry and engineering classes; will conduct educational field trips to aircraft, space electronics and computer facilities in San Diego, and will recruit volunteer Convair personnel for spare-time assistance with specific projects.

Rich Joins Convair To Head Advanced Missile Development

G. K. Rich has been appointed Director-Advanced Missiles Program Development for Convair. He comes to the company from a similar position with Vought Corporation, Grand Prairie, Tex., and was previously with Hughes Aircraft.

Rich will direct Convair activities related to the promotion of new business in the field of advanced offensive missiles, reporting to George Blackshaw, Vice President-Program Development.

L. J. Hayes Elected AIA Vice Chairman

The Aerospace Industries Association of America has elected L. J. Hayes, Convair Manager of Product Support, as Vice Chairman of its Spare Parts Committee.

GD World

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Patent Awarded to GD Engineer For Assembly of Space Structure

Contrary to popular belief, "Galloping Gerty," "Creepy Crawler" and "Magic Fingers" are not thoroughbreds going in Saturday's feature race at Del Mar.

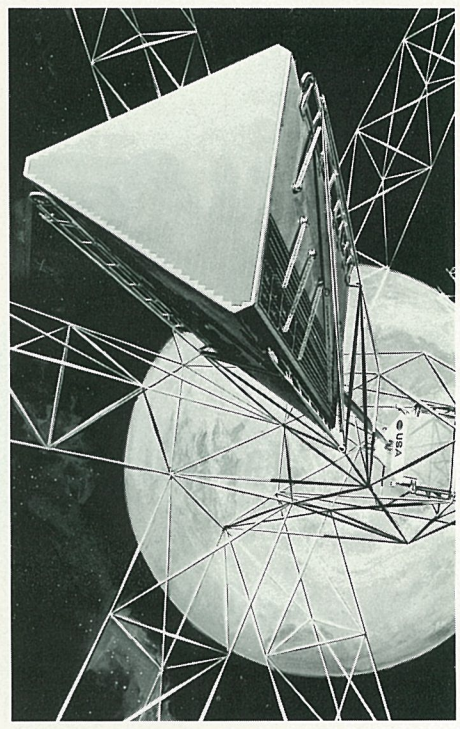
They are legitimate names associated with inventions and subsequent U. S. Patents issued to Paul Slysh, a Senior Software Engineer in the Data Systems Division Western Center.

Slysh recently received the last of five patents on a concept for assembly of a large space structure. His method uses two connected crawler vehicles carrying struts from which they assemble the structure. Hence, the name "Creepy Crawler."

Many of Slysh's patents involve large space structures which were issued over the years when he was assigned to Convair. Slysh is also credited with inventing an isogrid high-strength structure that is being applied to a variety of products. As an example, the shell gun mount for Pomona's Phalanx close-in weapon system uses the isogrid concept.

Back in 1955, Slysh was issued his first patent for a high-speed cigarette cut-off machine ("Galloping Gerty"). In 1973 he received a patent for a reciprocating thermal engine ("Magic Fingers"). All in all, he has received 14 patents.

John Duncan, Convair Division Patent Counsel, and Wayne Rounsavell of Western Center CAD/CAM, presented Slysh his latest patent certificate and cash award last month.



"Creepy Crawler." *An artist's concept of forming a large space structure assembly using patented technique invented by Paul Slysh, Data Systems Division Western Center.*

Ronald Stoneburner Appointed Pomona Director of Contracts

Ronald D. Stoneburner has been appointed Director of Contracts at General Dynamics Pomona Division.

In his new position, Stoneburner will be responsible for all activities of the Pomona Contracts Department, including proposal preparation, contract negotiation and administration.

Stoneburner, a native of Indianapolis, joined General Dynamics at Convair in 1967 as a Contracts Analyst and later became Contract Administrator. He joined General Dynamics' Electronics Division, also in San Diego, in 1975 as Contracts Manager. In 1979, he was named to his most recent position, Corporate Manager-Contracts in St. Louis.

Convair's Centaur To Be Featured On PBS Television

Convair's 20-year old star of the nation's space program, the Centaur high-energy upper stage, will be the feature of an up-coming half-hour television program on Public Broadcasting this fall.

The program, produced by NASA's Lewis Research Center in Cleveland, will detail the history of Centaur and take a look to the future as the booster is fitted into the Space Shuttle.

GD Flashback

B-32 Dominator Was Last Bomber Built for WWII

Here are some questions for World War II history buffs:

- What was the last type of heavy bomber developed by the United States before the end of the war?
- What was the last American bomber type to go into combat?
- Which bomber type is credited with shooting down the last Japanese aircraft of the war?
- What American bomber type was never shot down by the enemy?
- What heavy bomber was almost called the "Terminator?"

If you answered the "Consolidated B-32 Dominator" to these questions, you are absolutely correct.

The Dominator is not one of the best known aircraft of the war because, of the original order for more than 1,700 B-32s, only 115 were built. The B-32's history is the story of a "might-have-been" airplane.

Considered a "super Consolidated B-24 Liberator," the B-32 was created as insurance against the possible failure of the Boeing B-29 Superfortress program. Unfortunately for Consolidated, the B-29 greatly overshadowed its stand-in.

In 1939, the Army Air Corps sought a high altitude, long range super bomber to replace the smaller and slower B-17 and B-24. In the running were the Boeing XB-29, Lockheed XB-30, Douglas XB-31 and Consolidated XB-32. Lockheed and Douglas dropped out of the competition, and contracts were awarded on Sept. 6, 1940 to Boeing and Consolidated for two prototypes each, with a third prototype added later.

Consolidated's first two XB-32 prototypes had B-24 type twin tails. Their wingspan was 135 feet, length was 83 feet and height was 20 feet 10 inches. The third prototype, designated YB-32, had an entirely new tail. A single fin towered to 32 feet above the ground.

The production Dominator was powered by four Wright R-3350-23 Cyclone engines, which gave it a top speed of 358 mph at 30,000 feet and an average cruising speed of 250 mph. It had a range of 3,700 miles with a load of 8,000 pounds of bombs, 5,640 gallons of fuel and a crew of eight.

Although Consolidated wanted to call its B-32 the "Terminator," its name became the Dominator at the insistence of the Army Air Forces.

Delivery began in November 1944. But by the summer of 1945, when 40 bomb groups in the Pacific were equipped with B-29s, only one bomb group was equipped with the B-32. Many Dominators, without armament, were diverted as bomber trainers and designated TB-32s.

The AAF cut back on the original order — 1,213 to be built at Fort Worth and 500 to be built by Convair at San Diego — and only 115 made it off the assembly lines by the war's end.

The only B-32 unit was the 312th Bomb Group at Okinawa, and only one of its squadrons was equipped with Dominators by VJ Day. Fifteen B-32s, such as "The Lady is Fresh," saw combat service, flying a score or so missions. They were credited with shooting down three Japanese planes and damaging another.

The last verified "kill" came on August 18, 1945, the final day of the war. Two planes, "Hobo Queen II" and another B-32, tail number 3108578 (with no nickname), were on a photo-reconnaissance mission over Tokyo when they were jumped by 14 Japanese Navy (Zeke) and Army (Tojo) fighters.

"Hobo Queen II" was attacked first but was able to fight off nine separate passes by the fighters without damage or injury to its crew. However, the best she could do in the battle was claim one "probable" fighter shot down.

The credit for the last aerial victories of the war went to #578, piloted by Lt. John R. Anderson, but it suffered one dead and two wounded in the fight.

One of two photographers aboard #578 was killed and the other was wounded in the legs. One Zeke was shot down by tail gunner Sgt. John T. Houston as it came up behind the B-32. Sgt. Jimmie F. Smart in the upper rear turret hit another fighter, which rolled over and exploded. Smart shortly after was wounded in the head and became unconscious.

The two B-32s were able to fight their way back home, landing safely on Okinawa's Yontan strip.

The Japanese are not in agreement on the results of the last aerial combat of the war. Their records report that none of their fighters was lost that day. But a Japanese fighter pilot, Warrant Officer Sadamu Komachi, mistakenly claimed one of the B-32s as a probable, although no B-32s were lost in World War II.

The B-32 Dominator

EB Receives $39.4 Million For Trident Work

Electric Boat received two Trident submarine-related contracts last month totaling $39.4 million.

In the first contract, the Naval Sea Systems Command awarded the division $24.3 million to modify Trident design plans to enable the missile subs to deploy the Trident II rather than the Trident I missiles.

The contract stems from a request by the Navy to Congress to push the process ahead by placing Trident II missiles on the ninth ship rather than the 13th, as was previously planned. The House has already approved the concept.

In the second contract, EB received $15.1 million for long-lead procurement work on the 11th Trident — SSBN 736.

The contracts are the third and fourth that EB has received this year that are related to the giant missile-firing subs. In January, the Navy gave EB a $41.7 million contract to begin gathering material for the 11th Trident sub. Earlier this summer, the division received a $48.7 million contract to make design changes on all Tridents under construction.

* * *

U.S. Navy Officials Praise EB's Early Delivery of Michigan

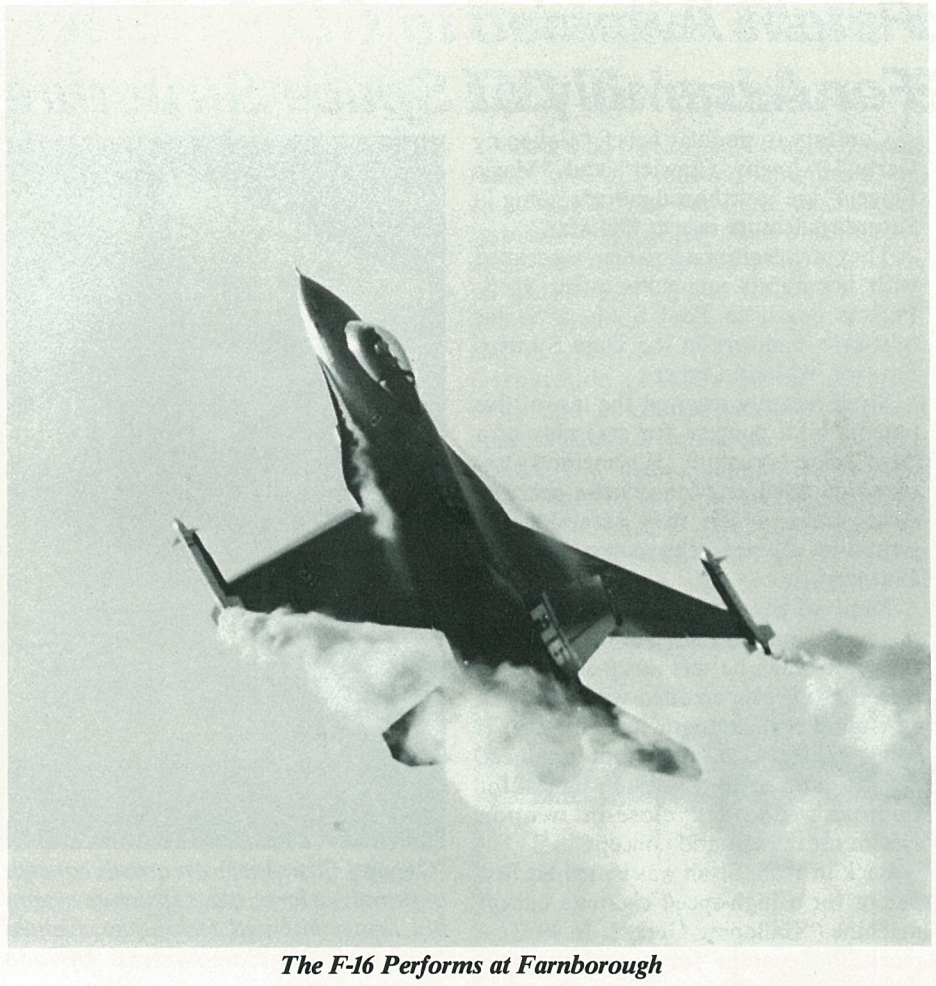
Electric Boat's delivery of the nation's second Trident submarine more than one month early has drawn praise from the U.S. Navy.

The shipyard turned over the USS *Michigan* (SSBN 727) to the Navy on August 28th, 33 days ahead of a schedule set last year. She officially joined the fleet during commissioning ceremonies September 11th at EB.

In a telegram to General Manager Fritz Tovar and Adm. Harold Young, Navy Supervisor of Shipbuilding at Groton, congratulating Electric Boat on the early delivery, George Sawyer, Assistant Navy Secretary, said: "Completion of the *Michigan* 33 days ahead of schedule is a testimony to the cooperative spirit that was demonstrated by the entire Navy/contractor team.

"Secretary Lehman," the telegram went on, "joins me in offering our sincere congratulations and best wishes to the thousands of shipyard workers and uniformed and civilian Naval personnel on your staffs who contributed to the successful delivery of this fine ship."

Assistant Secretary Sawyer termed construction of a ship like the *Michigan* "a mammoth undertaking that requires technical excellence and the closest of coordination and cooperation between Electric Boat, Sup Ship (Navy Supervisor of Shipbuilding), NAVSEA (Naval Sea Systems Command), the ship's crew and numerous contractor and government activities."



The F-16 Performs at Farnborough

Crowds at Farnborough Air Show Thrilled by F-16 Demonstration

"There is no question that the F-16 demonstration is one of the most outstanding at this air show."

"This has been an extremely competent and very convincing flight demonstration."

"This has been an astounding demonstration of what can be done with a powerful fly-by-wire aircraft."

Those were some of the enthusiastic comments expressed by an official narrator over the public address system as General Dynamics pilots Neil Anderson and Dave Palmer flew an F-16 multimission fighter through dazzling paces at the Farnborough Air Show in England from September 5th through 12th.

Throngs of spectators watched each day as a Norwegian Air Force F-16A, just off the Fokker assembly line in Holland, was flown alternately by Anderson, Director of International Flight Evaluation and Engineering, and Palmer, Chief Test Pilot at Fort Worth Division.

This was the second time that the Falcon was flown at Farnborough. The first was two years ago.

The *"Show Daily"* which was published at Farnborough, described the F-16 flying display as one that "can scarcely leave you unimpressed, from its afterburner loop off the deck to the whisper quiet idle power vertical reverse."

An article about Anderson and Palmer went further:

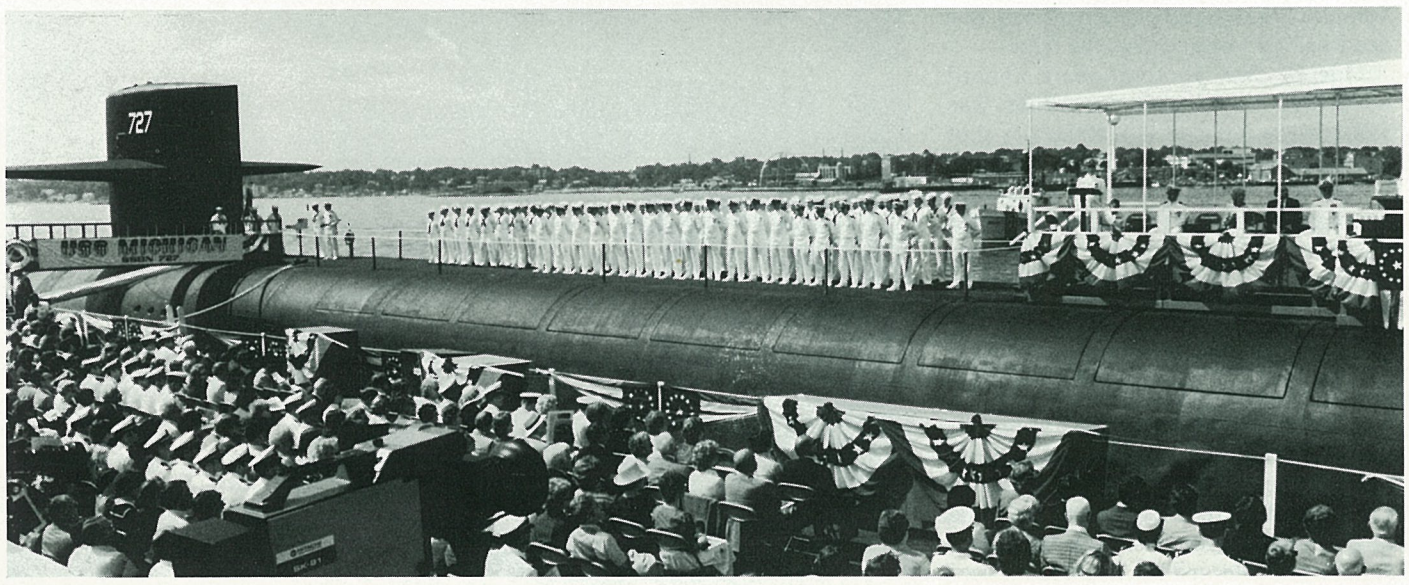
"You might reasonably suppose that a man who has flown 152 different aircraft types might have difficulty deciding his favorite, but General Dynamics' Neil Anderson is unequivocal: 'This one,' he says, pointing to the F-16 Fighting Falcon displayed at Farnborough.

"Anderson has flown the Fighting Falcon air show routine more than 200 times in 10 countries. He was involved with the F-111 development program and is a former U.S. Marine Corps F-8 Crusader squadron commander, with some 8,400 flying hours logged.

"Air show duties at Farnborough are being shared with Dave Palmer, GD Fort Worth's Chief Test Pilot and former U.S. Navy pilot and Vietnam veteran.

"The air show routine is arguably the most striking of all at Farnborough, and includes three maneuvers which are unique to the Fighting Falcon: the loop straight from take-off, low-speed vertical climb, and the astonishing high performance turn. 'It's nominally an 8.2 G maneuver,' says Anderson, 'but I've seen 8.5 G this week.' 'I had it up to 9 G on Monday,' Palmer says, matter of fact.

"The Fighting Falcon which they are flying here is a Fokker-built machine destined for the Norwegian Air Force, and is distinguished by the braking chute housing at the base of its fin — necessary for the Norwegian Air Force's short strips and public road operations. Don't they mind their new airplane being so thoroughly wrung out before they get their hands on it? 'They love it,' says Anderson. 'Fokker completed the airplane three weeks ahead of schedule. We've leased it for two weeks for the show, so they are very happy to be getting it a week before it was due.' ***And*** tested by the two most experienced F-16 jockeys in the business."



Joining the Fleet. *USS* Michigan *(SSBN 727), the nation's second Trident sub, is commissioned at Electric Boat's Groton, Conn., shipyard September 11th. Adm. Kinnaird McKee, Director of the Navy's Nuclear Propulsion Program and the principal speaker, termed the Trident "the most capable warship of its kind in the world today."*

Standard Missile Is Successful In Pacific Test

A Standard Missile-1 Block VI missile has been fired successfully from the USS *Norton Sound* at the Pacific Missile Test Range off the coast of California.

The USS *Norton Sound,* an ordnance ship, used a test version of the new Aegis Combat System, and if the missile had carried a warhead instead of an instrumentation package, the result would have been the destruction of the drone target.

There have been 11 previously successful flight tests of Standard Missile-1 Block VI. The most recent test confirms the reliability of the missile, now in production at Pomona.

Standard Missile-1 Block VI is an improved version of the Block V missile, which has been phased out of production. Production of Block V began in 1970 and concluded in 1981.

Initial production of Standard Missile-1 Block VI guidance sections was completed last year. Since then, Pomona has received three additional contracts totaling $254 million for the production of guidance sections and other parts.

Deliveries will continue through September 1984, and additional contracts are expected.

The key element of Standard Missile-1 Block VI is its guidance section incorporating a new monopulse receiver and a new digital guidance computer.

The monopulse receiver significantly improves the missile's performance. The new digital guidance computer is also significantly more flexible than the analog computer used in earlier missiles in the Standard series and helps to enhance the overall capability of the Block VI version.

Standard Missile-1 Block I became the U.S. Navy's major surface-to-air weapon system in the late 1960s. Since then, approximately 10,000 Standard Missiles with evolutionary improvements have been delivered to the U.S. Navy and navies of allied countries. Approximately one hundred U.S. Navy ships and 30 ships of allied navies are armed with the missile.

Land Systems Tank Production Beats Schedules

Land Systems' M1 tank production in August exceeded total contract schedule requirements for the first time with the delivery of 55 tanks from the Detroit Arsenal Tank Plant and the Lima Army Tank Plant.

B. E. Ewing, Land Systems Vice President of Manufacturing, said the 585 M1 tanks delivered through August 1982 bring the total to two more than production schedules call for.

At the same time, Ewing said production of M60 tanks was seven units ahead of schedule at the end of August.

Ewing pointed out that the plus-schedule accomplishment is in response to the challenge of O. C. Boileau, General Dynamics President, who said in March 1982 that the number one objective of Land Systems was the meeting of scheduled production.

"The employees of both tank plants, working in close cooperation with the government, rolled up their sleeves, aggressively attacked and solved production problems, and made this significant milestone possible," Ewing said. "With continued performance like this, we can look forward to a healthy, growing program."

Lt. Col. Mike Boudreau, Detroit Arsenal Tank Plant Commander, and Lt. Col. Joseph Mayton, Lima Army Tank Plant Commander, accepted the M1 tanks that put Land Systems ahead of contract schedule.

GD World

Vol. 12 No. 10 5 October 1982

Lewis Named NMA Executive Of the Year

David S. Lewis, GD Chairman and Chief Executive Officer, was presented the 1982 Executive of the Year Award of the National Management Association (NMA) at the organization's National Conference on October 13th in New Orleans.

The award, the highest the NMA gives to an individual, was presented to Lewis for his leadership and his contributions to management as a profession and to the American enterprise system.

In presenting the award, Jean Hatfield, NMA President, said Lewis was "a dynamic leader, an exceptional and successful executive." Further, she said Lewis was "an outstanding executive who has made a great contribution of leadership toward the preservation and advancement of American enterprise."

In his remarks, Lewis said that for almost 60 years the NMA has provided a great service to the business world through its highly successful management training programs. Noting that 8,200 GD employees are participating in NMA activities, Lewis said, "we at GD are extremely appreciative that so many men and women of our company have taken advantage of the opportunities provided by NMA over the years."

Lewis, who had been asked to speak on his management philosophy, said, "For managers to succeed, I believe they must be committed to doing the job assigned to them to the absolute best of their ability. . . . Truly committed managers will understand that they are fully responsible for the job assigned. While they may have the authority to delegate parts of the job, in the final analysis, they cannot delegate the responsibility for its successful accomplishment.

"There are a great many different management styles and philosophies" he continued. "However, it seems to me that the successful ones are all based on the application of common sense principles to every phase of the management process. From the earliest planning cycles, through each of the steps required to execute those plans, it is the job of every manager at every level to use those assets assigned to them as though they were their own. To do their job right, they must be committed; they must be willing to accept the responsibilities that go with authority — that go with leadership."

Lewis also said that to be successful, managers must maintain their integrity, give consideration to the needs and aspirations of their people and "subordinate short-term opportunities for personal gain and recognition for the long-term best interests of their company."

At the conference, Gene Garrett of Fort Worth was named NMA Chairman for 1983; Charles Rue of Pomona was elected Senior Vice Chairman. Norm Rutherford of Convair was honored as the National Management Association Member of the Year for 1982.

GD Completes Sale Of Telephone Units To Comdial Corp.

Comdial Corporation on October 1st announced completion of the acquisition from General Dynamics of certain of the businesses, assets and property of General Dynamics Telephone Systems Center, Inc. (TSC) and American Telecommunications Corporation (ATC).

TSC, located in Charlottesville, Va., produces telephone instruments and systems for the nation's independent telephone companies. ATC, located in El Monte, Calif., is a leading manufacturer of decorator telephones.

Delivery to Pakistan. *Ambassador of Pakistan to the United States Ejaz Azim addresses the dignitaries and guests at the ceremony marking the delivery of the first F-16 to the Pakistan Air Force. Seated on the platform are from the left: USAF Maj. Gen. Edgar A. Chavarrie; David S. Lewis, GD Chairman; U. S. Representative Charles Wilson; Pakistan Air Force Air Commodore Hakimullah; USAF Brig. Gen. George L. Monahan Jr., and USAF Col. Howard L. Bodenhamer.*

Islamic Republic of Pakistan Takes Delivery of Its First F-16

The first of 40 F-16 fighter aircraft to be delivered to the Pakistan Air Force (PAF) over the next three years was accepted October 13th by Air Commodore Hakimullah, PAF Project Falcon Director, during a ceremony at Fort Worth .

During the ceremony, Ambassador of Pakistan to the United States Ejaz Azim said, "This is a great day in the history of the Pakistan Air Force and our country for we are acquiring a weapon system that is so highly advanced, so technologically the very best in the world.

"This is the symbol of our new relationship between Pakistan and the United States, a relationship that will last. You can depend on us in our region in these troubled times."

Noting that the sun was shining brightly outside the hangar that the ceremony was being held in, the Ambassador said he felt it was "an omen for the future (and) I hope is the beginning of a new era which will flower and bloom to the satisfaction of both our countries."

David S. Lewis, GD Chairman of the Board and Chief Executive Officer, said the aircraft was being delivered only 10 months after the formal Letter of Agreement was signed between officials of the two countries, and noted that "this has been a very intensive program, one that has been anything but routine."

He had high praise for the cooperation between the air forces of both nations, and he said the employees "here at Fort Worth have done extremely well.

"We are very delighted to have the F-16 join this highly professional air force. This is the first time we have ever had the opportunity to be of service to the Islamic Republic of Pakistan, and we will do everything we can to support these aircraft."

U.S. Representative Charles Wilson, Democrat of Texas, told Ambassador Azim, "We have a lot of pride in Texas. Pride in our national resources . . . but most of all pride in the things we build better than anybody else in the world, and I think the F-16 is the best example of that. . . . "

Representing the U.S. Air Force was Maj. Gen. Edgar A. Chavarrie, Assistant to the Deputy Chief of Staff for Programs and Resources; Brig. Gen. George L. Monahan Jr., Deputy for F-16, and Col. Howard L. Bodenhamer, Air Force Plant No. 4 Representative Office.

General Chavarrie referred to the quick delivery time of the first F-16s for Pakistan, saying, "Twelve months is not just unique, really it's dramatic. The key, I think, has been the teamwork between our two governments, the two air forces and General Dynamics' personnel.

"It is a privilege to witness the realization today that 10 months ago was only a dream."

Herbert Rogers, Vice President and General Manager of Fort Worth, said the division "certainly appreciates the working relationship we have with the U.S. Air Force and with the Air Force of Pakistan."

He also noted that accelerated delivery of the aircraft marked a milestone in the

Continued on Page 2

Great Day. *Pakistan Air Force Air Commodore Hakimullah (left) and USAF Brig. Gen. George L. Monahan Jr., pose with the acceptance document transferring the first F-16 Falcon to the Pakistan Air Force.*

Scranton Plant Tank Builders' Skills Praised

The M1 Abrams tank "has performed admirably" in recent U.S. Army exercises and General Dynamics workers should be proud of their role in producing this vital new weapons system.

That was the message presented by the Secretary of the Army John O. Marsh Jr., on October 16th at ceremonies marking the 25th anniversary of the Land Systems Division Scranton Tank Plant.

The silver anniversary celebration at the Pennsylvania plant also was attended by Maj. Gen. Duard D. Ball, M1 Program Manager; Congressman Joseph M. McDade, Republican of Pennsylvania, in whose district the plant is located, and Oliver C. Boileau, General Dynamics President.

Recognition was accorded 108 employees who completed 25 years of service, and there was an open house for the plant's 614 employees, their families, and guests. To top off the event, an M1 tank and an M-60 tank were brought to the plant for the first time to display the end results of the various components machined at Scranton.

Expressing hope that Congress will "maximize production" of the M1, Congressman McDade told the employees: "For 25 years, the skills you bring to the job have made it possible to spread the word that we have good people ready to do a hard day's work — people who make a quality product and want to do more. We believe very strongly in the future of the M1 tank. It is the most modern, most effective and most powerful tank of its kind every made."

Secretary Marsh said the Scranton facility "plays an important role" in helping the Army to achieve its mission to deter war.

"A successful American defense program is dependent upon a strong industrial base that possesses not only the tools and machines for modern armaments but more importantly has people with skill, knowledge and dedication in the performance of their tasks," Marsh said. "This is why this has been such a successful operation."

The Secretary said that the Soviet Union's tanks outnumber those of the United States by about 50,000 to 11,000, so that "it is essential that we offset this quantitative advantage through technology, superior soldiers, sound tactics and quality leadership.

"We have the soldiers, the noncommissioned officers and officers, together with the tactics, but we must give them the equipment that will enable them to perform their mission of deterrence," he said. "The M1 tank is a key part of this defense equation."

Observing that the M1 "has performed admirably in recent exercises called REFORGER in Europe," Marsh said:

"Its speed, maneuverability, weapons systems and maintainability have given an added dimension to armored warfare and caused experts to give it high marks on performance. The best testimony on the M1, however, comes from the drivers, the gunners and the sergeants who operate it. If you talk to them you will find that they have confidence and enthusiasm in both its capabilities and its performance.

"I commend you for the vital role that you play in helping the Army acquire this necessary weapon system for our nation's defenses."

Robert E. Dine, who has been Plant Manager since April 1959, traced the facility's history since early 1957. Dine introduced Boileau who, alluding to the plant's transfer to General Dynamics last March, said:

"Within our company, our number one resource is people. We're just as proud as you are that we have joined each other . . . . You've done a superb job. You are one of the most effective plants we have in Land Systems Division."

The **Portsmouth** *Slides into the Thames River*

8,000 On Hand to Witness Portsmouth Launching at EB

Sunny skies and warm temperatures on September 18th brought out a large crowd of 8,000 persons for the launching of the fast-attack submarine *Portsmouth* at Electric Boat.

Standing at two vantage points — a pier on the yard's Land Level Submarine Construction Facility and near the bow of the ship in the construction shed — the spectators cheered as the 360-foot vessel sliced into the shimmering Thames River.

Moments before, Helen Goodrich, wife of Navy Under Secretary James F. Goodrich, had smashed a bottle of champagne on the bow plate of the 688-class submarine.

Simultaneously, Leo Penniman, retired Superintendent of Second Shift Operations and "Triggerman" for the launch, received a signal as he stood next to the ways on the port side of the ship. Penniman pushed a large trigger, releasing *Portsmouth* for her slide into the river.

Accompanied by the cheers of spectators and the familiar "Anchors Aweigh" by the U.S. Coast Guard Band, *Portsmouth* gathered momentum and quickly entered the water for the first time. She had moved smartly down the ways for good reason: she was the heaviest 688-class submarine ever launched at EB.

Earlier in the ceremony, Secretary Goodrich, the principal speaker, had called the national defense "our first and foremost social service.

"The President and Congress," Goodrich continued, "have developed and funded a badly needed military recovery — an expansion and modernization —and they have done it while considering other domestic programs fairly."

Goodrich called the *Portsmouth*, honoring cities of the same name in Virginia and New Hampshire, a "magnificent vessel" and praised the quality of workmanship on the sub and "the much-improved working relationship between the Navy and her shipbuilders.

"We have a critical need for that level of commitment from all our defense contractors — in fact, from the entire industrial base — if we are to achieve the President's objective of a 600-ship Navy, 15 carrier battle groups, and clear maritime superiority within this decade."

Also taking part in the ceremony were: Senator Gordon J. Humphrey, Republican of New Hampshire; David S. Lewis, General Dynamics' Board Chairman; Electric Boat General Manager Fritz G. Tovar; Mayor Peter Weeks of Portsmouth, N.H., and J. E. Johansen, Mayor of Portsmouth, Va.

Islamic Republic of Pakistan Takes Delivery of Its First F-16

Continued from Page 1

F-16 program.

"My special thanks to all of you who made it possible," Rogers said.

In addition to the challenges of manufacturing the aircraft without affecting the scheduled deliveries of F-16s to the USAF, Rogers said pilots and technicians had to be trained.

"The Pakistan pilots and technicians have proven to be superior students who will return to Pakistan fully capable of meeting their operational requirements."

About 60 of the technicians who are now being trained in Fort Worth were seated in the audience during the ceremony. Pilots are being trained by the USAF at Hill AFB, Utah.

Rogers also pointed out that spares have been procured, that the air base in Pakistan is ready "and I'm proud to say that support equipment is available in mission essential quantities to satisfy criteria laid out in the initial agreement between the two countries."

General Monahan, Deputy for the F-16, who has been connected with the F-16 program at various times since its inception, said he felt the early delivery of the F-16 "is becoming very much a tradition in the F-16 program. We have been consistently receiving F-16s ahead of schedule and under cost. That is a good tradition."

The two-seat Falcon, painted in gray camouflage colors and carrying PAF markings, made its first flight on August 4th. It and several other F-16s will be flown to Pakistan in December by U.S. Air Force pilots.

The first PAF F-16 squadron is being formed at Sargodha, a fighter base south of Islamabad. Instructor pilots and maintenance technicians have been training in the United States since July and are scheduled to return to Pakistan prior to the arrival of the F-16s at Sargodha.

Savings and Stock Investment Values

	Aug. 1980	Aug. 1981	Aug. 1982
Salaried			
Government Bonds	$ 2.4357	$ 2.6163	$ 3.1132
Diversified Portfolio	1.9194	2.0366	2.0660
Fixed Income	1.1167	1.2385	1.3786
Hourly			
Government Bonds	2.4335	2.6133	3.1113
Diversified Portfolio	1.9580	2.0803	2.1088
GD Stock	$35.8125*	$22.8750	$33.5000

* Reflects 2 for 1 stock split of November 1980.

GD Executives Attend Seminar On Product Quality, Reliability

Key executives from several divisions of General Dynamics met at Convair last month for a two-day seminar on quality improvement.

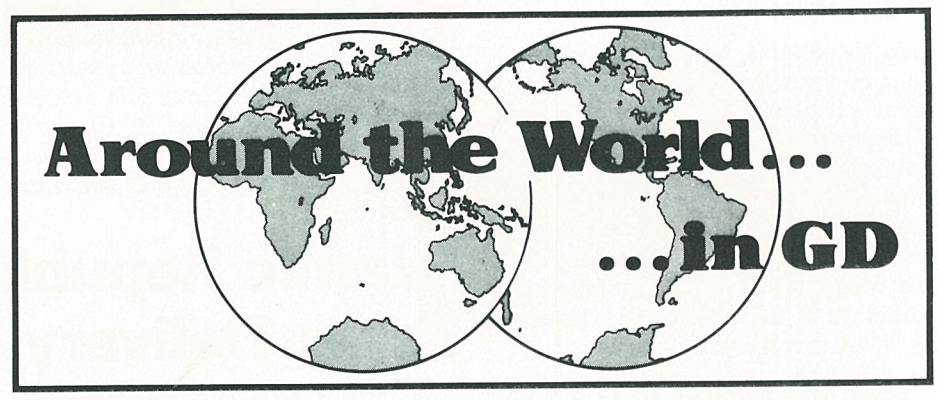
The seminar was in response to a Department of Defense challenge to government contractors calling for quality and reliability improvement and reduction of excessive manufacturing costs of products being delivered to the military services.

The speakers included several experts on quality from the military services — W. J. Willoughby, Jr., Deputy Chief of Naval Material — Reliability and Quality Assurance; J. V. Lavery, Assistant for Product Assurance, Air Force Systems Command; and S. J. Lorber, Director Product Assurance and Test, Department of the Army, Development and Readiness Command.

Frank Chesus, GD Vice President Operations and Quality Assurance — Aerospace, said, "DoD has made it very clear that the measure of quality performance will be a significant factor in award of future defense contracts. As a leading manufacturer of military systems, we accept the responsibility for producing better quality products and at the same time lowering the cost."

To meet DoD's challenge, Chesus pointed out that General Dynamics has established an Aerospace Plan directed towards an increased awareness of the need to utilize quality as a means to improve the company's competitive position.

Dr. J. M. Juran, an author and authority on quality, was guest speaker on September 14th. His Upper Management and Quality seminar had its origin in the early '50s in Japan where he studied the Japanese approach to quality and conducted courses for the industrial leadership of Japan.



CHQ: *Gail L. Hampton* joined as Senior Auditor/Administrator . . . *John Wenberg* as Corporate Pricing Analyst . . . *Gwyn E. Geyer* as Internal Auditor . . . *Debra L. Ehster* as Subcontract Auditor . . . *Frank T. McCloy* as Corporate Marketing Manager-Far East . . . *Michael L. Rainey* transferred from Pomona and was promoted to Internal Auditor.

Convair: *Daniel C. Bain* was promoted to Tooling Supervisor . . . *William F. Cogan* to Material Operations Supervisor . . . *Robert A. Cox* to Engineering Chief . . . *Jack L. Wolff* to Program Engineering Manager.

Fort Worth: *P. F. Delforge* and *R. E. Pruyn* to Program Analyst Senior . . . *D. R. Elmore* to Chief of Maintenance Services . . . *G. C. Fels Jr.* and *G. A. Gritton* to Logistics Group Engineer . . . *R. L. Hill* and *G. M. Spivey* to Manufacturing Control Supervisor . . . *J. R. Imes* to Logistics Supervisor . . . *J. Jeffress* to Financial Supervisor . . . *T. R. Lenning* to Field Service Engineer . . . *T. J. Lubischer* to Planing Specialist . . . *A. H. Lusty Jr.* to Project Engineer . . . *B. D. Martin* to Project Coordinator . . . *D. R. McNeeley* and *H. J. Wilson* to Logistics Engineer . . . *A. L. Stratton* and *J. T. Werner* to Engineering Chief . . . *D. G. Walker* to Manufacturing Control Coordinator . . . *J. L. Williams* to Industrial Engineer.

Electric Boat: *Richard Douville* and *Robert King* were promoted to Radiological Control Shift Supervisor . . . *Roger Barber* to Material Planning Administrator . . . *Eugene Carney* to Superintendent . . . *Robert Hall* to Chief of Change Control . . . *Brian Hill* to Senior Program Management Coordinator . . . *William Hipp* to Senior Engineering Assistant . . . *Robert Itteilag* and *Joseph Parker* to General Foreman . . . *Charles Pieniadz* to Supervisor, Material Program and Control . . . *Peter Stevens* to Engineering Supervisor.

Land Systems: *A. E. Kreger* was promoted to Corrective Action Chief . . . *D. Fowler* to Quality Engineering Chief . . . *R. Powell* to Quality Assurance Specialist . . . *M. Hornung* to Office Services Unit Supervisor . . . *R. Diaz* to Business Planning Specialist . . . *R. Shtogrin* and *J. Kreason* to Industrial Relations Specialist . . . *J. F. Hill* to Senior Subcontract Administrator . . . *J. Wendel* to Supplier Management Representative . . . *H. Starostenko* to Follow-up & Production Central Liaison Supervisor . . . *R. E. Kott* to Chief Powerhouse Engineer . . . *K. G. Gorski* and *J. E. Husken* to Quality Assurance Engineer, Senior . . . *P. M. Costantino* to Product Cost and Billing Supervisor . . . *J. C. Sparks* to Quality Assurance Engineer . . . *M. S. Ragatzki* to Captain-Plant Security . . . *S. Sengupta* to Program Review and Analysis Specialist . . . *R. D. Elkins* to Powerhouse Supervisor . . . *A. Rusnak* to Field Engineering Representative B . . . *V. Masters* to Field Engineering Representative A . . . *N. Hahka, N. LaPrise* and *R. Kern* to Project Engineer . . . *R. Cross* to Packaging Engineer B . . . *H. Anderson* to Test Engineer Supervisor . . . *R. Talbot* to Quality Requirements Supervisor . . . *F. Hiller* to Quality Analyst Supervisor . . . *T. Walkush* to Maintainability Supervisor . . . *T. Post* to Configuration Change Coordinator B . . . *W. Fitzgerald* to Field Site Supervisor-ILS . . . *K. Gregory* to Technical Training Program Supervisor . . . *A. Nichols* to Proposal Specialist . . . *R. Krueger* to Product Design & Development Engineer, Senior . . . *James D. Martin* transferred from St. Louis and was promoted to Manager of Procurement.

Pomona: *James W. Dibelka* was promoted to Procurement Representative . . . *Mark A. Bencomo* to Project Coordinator . . . *Kevin P. Daugherty* to Project Administrator . . . *Richard S. Fichtner* to Estimating Specialist . . . *Jacob C. Gray Jr.* to Material Control Supervisor . . . *Jacquelyn L. Hanson* to Manufacturing Analyst . . . *Charles L. Knox* to Quality Assurance Group Engineer . . . *Marc Koenig* to Project Representative . . . *Philip E. Phaneuf* to Manager, Plant Engineering . . . *Clifford R. Piequet* to Project Representative.

Electronics: *Daniel Ellingson* was promoted to Manager, Production Engineering/Planning . . . *Olivia L. Mathews* to Quality Liaison Representative . . . *Terry A. Weathers* to Senior Project Manager-Operations . . . *Daryl Whitfield* to Section Head, Material Operations.

DatagraphiX: *David L. Buck* was promoted to Manager, Marketing Software . . . *Jim H. McCormick* to Regional Sales Manager . . . *Robert E. Hickok* to Product Manager-CRT . . . *Roger L. Mullins* to Purchasing Agent.

Degree Program Earns Honor for Frances Brooks

Frances Brooks, Coordinator of Continuing Education at Fort Worth, was honored recently by the faculty and staff of Southern Methodist University in Dallas, which has worked closely with the division in helping employees earn advanced degrees.

Oliver C. Boileau, President of General Dynamics, presented Brooks an engraved silver tray on behalf of the university at an open house.

Many Fort Worth engineers who are working on advanced courses through closed circuit television classes were on hand as Boileau honored "the lady who started this in 1951 and has been so actively involved ever since. We very much appreciate that."

Through the program, Fort Worth enrollment has totaled 7,000, and nearly 500 employees have received advanced degrees.

The open house was the first time that many of the employee-students had the opportunity to meet their instructors. Until the late 1960s, instructors drove to the plant to hold classes, Brooks said. Then classes were held by closed circuit television.

In his presentation remarks, Boileau noted that it was also in 1951 that he graduated from the University of Pennsylvania and that the firm he went to work for, RCA Corp., had an agreement similar to that started between Fort Worth and the university.

"The cooperation which has grown up here is vital to industry," he said.

Brooks, in receiving the tray, praised the teamwork between the management of General Dynamics and the university.

An inscription on the tray read "To Frances P. Brooks from Southern Methodist University in appreciation for 30 years of outstanding contributions to the graduate student program."

In her response, Brooks promised to "do as well in the next 30 years."

Employees Pledge 106 Percent of Goal For Con-Trib Club

Employees at Fort Worth pledged to donate $1,937,380 to the Con-Trib Club for the coming year.

A large portion of that amount will go to the United Way of Metropolitan Tarrant County.

The amount pledged was 106 percent of the goal of $1,820,834.

"Fort Worth employees have proven once again that when it comes to helping people in need, they care, and they will be there with their support," said Herbert F. Rogers, Vice President and General Manager.

Rogers also thanked those who took part in the annual Con-Trib Club drive, saying, "You joined together in an all-out team effort to provide critically needed funds to meet the human needs of our community . . . You made the campaign successful and I thank you for participating to pledge the funds needed to help meet the needs of many people."

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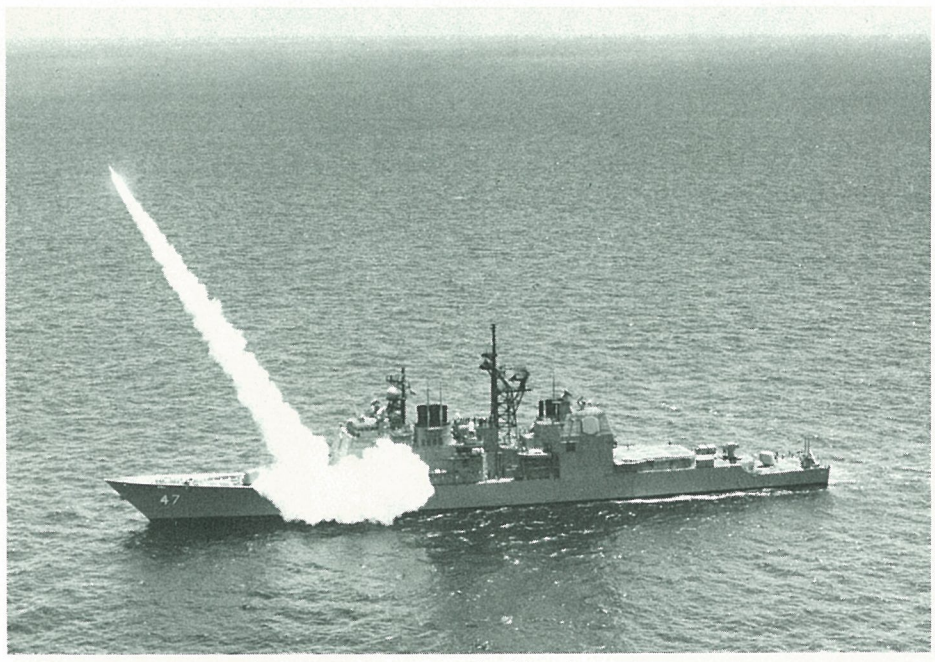

A Standard Missile Is Launched by the USS **Ticonderoga**

USS Ticonderoga Fires Pomona's Standard Missiles in Tactical Tests

Standard Missiles have been test-fired from the USS *Ticonderoga* for the first time, and the firings resulted in tactical successes against two drone targets.

The firings of the Pomona-produced missiles took place in the Gulf of Mexico off the Florida coast. It was the first time that a U.S. Navy ship had conducted Standard Missile engagements before being commissioned. The *Ticonderoga* is scheduled to be commissioned in January 1983.

The *Ticonderoga* is the first ship to carry the sophisticated computerized Aegis air defense system, including Standard Missile-2 and the Phalanx close-in weapon system, both in production at Pomona.

The successful firings of Standard Missile-1 Block VI proves the interoperability of Standard Missile-1 and -2 aboard the new Aegis cruisers.

The key element of Standard Missile- 1 Block VI is a guidance section incorporating a new monopulse receiver and a new digital guidance computer. Block VI has been in production at Pomona since August 1979.

Initial production of Standard Missile-1 Block VI guidance sections was completed last year. Since then Pomona has received three additional contracts totaling $254 million for the production of guidance sections and spare parts.

Standard Missile-1 Block I became the U.S. Navy's major surface-to-air weapon system in the late 1960s, and since then approximately 10,000 Standard Missiles with evolutionary improvements have been delivered to the U.S. Navy and navies of allied countries.

Tests Continue On New Version Of Standard Missile

A Standard Missile-2 Block II missile has scored a direct hit on a drone target for the third time during a test at White Sands Missile Range, N. M.

Several additional flight tests of the Pomona-manufactured Standard Missile-2 are scheduled later this year, to be followed by at-sea test firings to demonstrate the missile's readiness for production.

The Block II missile contains improvements over the earlier Block I version, including greater maneuverability and increased accuracy.

Improvements in performance and electronic countermeasures capability are being introduced in a series of evolutionary block changes to ensure that the Standard Missile family remains ahead of threats to the fleet.

Combat Fire Control System Evaluated By Egyptian Army

Land Systems personnel recently demonstrated the division's fire control combat simulator (FCCS) to the Egyptian military in Cairo.

Lou Voelkel, Land Systems Marketing, and Pete MacDonald, Training Devices, made the presentation to the Deputy Commander of Armor Training and to the Chief of Training, Armor Branch of the Egyptian Army.

The FCCS, a training device developed by Land Systems, provides a way to develop and maintain fire control proficiency without the need for live ammunition, fuel, vehicle operation and firing ranges. The unit uses actual gunner's hardware and electronically simulates battlefield scenarios and fire control operation and results.

The unit was first demonstrated to the Deputy Commander of Armor Training and his staff, and then, under the guidance of Egyptian officers, nearly 100 soldiers were put through a training exercise.

Laser Gyro Cuts F-16/79 Fighter Reaction Time

The F-16/79 export fighter recently became the first multimission aircraft to fly with a ring laser gyro for navigational purposes.

Use of the ring laser gyro instead of the standard electromechanical inertial gyro has resulted in a significant reduction in time that is required to get airborne from a quick reaction intercept posture.

A conventional gyro uses a spinning wheel to measure changes in the navigational position, while a ring laser gyro operates with a laser beam.

In repeated company-funded tests of the Honeywell ring laser gyro at Fort Worth, fast alignment times of the navigation system of less than 20 seconds were recorded, compared to 56 seconds for a mechanical gyro system.

Quickest time reported in the tests conducted at Carswell AFB in Texas was 49 seconds to start the engine without any external ground support, align the gyro, taxi and initiate an afterburner takeoff. The simulated intercept concluded with the F-16/79 reaching Mach 2 at 40,000 feet, just six minutes and eight seconds after brake release on a hot, 100-degree (F) day.

The ring laser gyro was evaluated as an option to provide a more rapid reaction time for getting the interceptor aircraft into the air. The tests showed the unit to be compatible with the F-16/79 in form, fit and function. The ring laser gyro operated for more than 200 hours without a failure.

Land Systems To Study Combat Vehicles of Future

The U.S. Army Tank-Automotive Command (TACOM) recently awarded General Dynamics Land Systems an 11-month contract to study close combat vehicles that will meet the requirements of the years 2000 to 2020.

GDLS will work with Battelle Memorial Institute and Litton Industries Guidance and Control Systems Division. Battelle will analyze the operational concepts and systems capabilities. Litton will serve as the electronics-suite architect.

The study will examine high payoff technologies that will mature in the post-2000 era, such as system and subsystem robotics; electronic warfare systems, and highly improved methods of command, control and communications.

GDLS, the study team leader, will integrate these technologies into a family of future combat vehicles and will formulate an operational concept to counter the long-term threat beyond the year 2000.

Dr. T. K. Sandberg, Program Manager, said the program gives GDLS a unique opportunity to work with U.S. Army planners in developing the ways in which the Army will fight and the types of combat vehicles that will be used on future battlefields.

This contract represents the second phase of future combat vehicle studies for TACOM. The first phase, completed in March 1982, examined the 1990-2000 time period.

Convair Receives Space Station Study Contract

Convair has received a contract to examine and define Space Station development missions for servicing space-based orbit transfer vehicles (OTVs).

The eight-month study from NASA's Marshall Space Flight Center calls for technical and planning information for developing space-based OTV capability including identifying service requirements for propellants, repair and maintenance.

The OTV is a cryogenic upper stage for the Space Transportation System that will offer performance capabilities such as reusability, low acceleration and engine restart.

The award from Marshall Space Flight Center is the second Space Station-related study received recently by Convair. In August, Convair was one of eight companies selected by NASA to carry out an eight-month study to define the mission requirements for a permanent, manned, low Earth-orbit Space Station.

V. F. Brenna Named Vice President For Range Systems

V. F. Brenna has been named Vice President-Range Systems for Electronics Division. Brenna was previously Director of Range Systems for the division.

Electronics produces training range instrumentation systems for the U.S. military services and international customers. The division has instrumented ranges at seven military bases in the United States and several mobile ranges.

Brenna joined General Dynamics in 1961 at Vandenberg AFB, Calif., where he was a project engineer on the company's Atlas intercontinental ballistic missile. He joined Electronics Division in 1972.

He has a bachelor's degree in engineering from Stevens Institute of Technology and a Master of Science in electrical engineering from California State University, San Jose, Calif. He has also participated in the Stanford University Executive Program.

Atlas-Centaur Satellite Launch Extends Record

A Convair Atlas-Centaur last month successfully placed an Intelsat V telecommunications satellite into orbit, marking the 18th consecutive successful launch of an Atlas-Centaur over a five-year period.

The Intelsat V was launched September 28th, from Cape Canaveral, Fla., into an egg-shaped transfer orbit. At the sixth orbit, the spacecraft's onboard solid propellant motor was fired to circularize the satellite into geosynchronous orbit. According to the International Telecommunications Satellite Organization, the spacecraft is in excellent condition and in almost perfect orbit with all antennas deployed and Earth acquisition completed.

The Intelsat launched last month was the fifth of a new series of nine international telecommunications satellites owned and operated by the 105-nation Intelsat consortium. Four earlier Intelsat Vs were successfully launched atop Atlas-Centaur launch vehicles in December 1980, May 1981, December 1981 and March 1982.

Now positioned in orbit over the Indian Ocean, the latest Intelsat V will be the prime satellite to provide communications services between Europe, the Middle East and the Far East. The Invelsat V launched in March will be moved from its present position over the Indian Ocean to a position over the Atlantic at a later date. Each of the Intelsat Vs now on station has almost double the communications capacity of earlier satellites in the Intelsat series — 12,000 voice circuits and two color television channels.

* * *

Atlas-Centaur Has Supported Variety Of Space Missions

Over the past five years, Convair's reliable Atlas-Centaur has successfully launched 18 spacecraft. They include seven Intelsat communication satellites; five Fleet Satellite Communications Satellites (FLTSATCOM) for the Department of Defense; two High Energy Astronomy Observatories (HEAO); two domestic communications satellites (COMSTAR), and two Pioneer spacecraft to Venus.

Following is the five year chronology of success recorded by Atlas-Centaur:

1978		
January	AC-46	Intelsat IVA
February	AC-44	FLTSATCOM
March	AC-48	Intelsat IVA
May	AC-50	Pioneer Venus
June	AC-41	COMSTAR
August	AC-51	Pioneer Venus
November	AC-52	HEAO-B
1979		
May	AC-47	FLTSATCOM
September	AC-53	HEAO-C
1980		
January	AC-49	FLTSATCOM
October	AC-57	FLTSATCOM
December	AC-54	Intelsat V
1981		
February	AC-42	COMSTAR
May	AC-56	Intelsat V
August	AC-59	FLTSATCOM
December	AC-55	Intelsat V
1982		
March	AC-58	Intelsat V
September	AC-60	Intelsat V

The most recent launch of Atlas-Centaur on September 28th was the 468th for Atlas and the 67th for Centaur.

Dividends Declared

The General Dynamics Board of Directors declared a regular quarterly dividend of 18 cents per share on the company's common stock and $1.0625 on its Series A preferred stock, payable on November 15th to shareholders of record on October 18, 1982.

Senator's Visit. *U.S. Senator John Glenn (left), Democrat of Ohio, is congratulated on completing a flight in an F-16 Falcon at Fort Worth recently by U.S. Representative Jim Wright (center), Democrat of Texas, and Ted Webb, Fort Worth Vice President of F-16 Programs. Glenn, a former U.S. Marine Corps pilot, was accompanied on his F-16 flight by another former Marine pilot, Neil Anderson, Fort Worth's Director of International Flight Evaluation and Engineering.*

First Funding Set For F/FB-111 Avionics Upgrade Program

Fort Worth recently received a $3 million engineering call contract as the first funding for the beginning of an F/FB-111 avionics upgrading program.

While not a signal for the full go-ahead for the program, the contract ultimately could lead to the full upgrading of the unique aircraft that is scheduled to serve operationally well into the 21st century.

USAF to Base F-16s In Japan in 1985

The U.S. Air Force has announced plans to deploy two squadrons of F-16 Falcons to Misawa Air Base on the northern end of the main Japanese island of Honshu beginning in 1985.

The announcement said, "The proposed deployment of the multimission F-16 would improve the military balance in the Far East, demonstrate U.S. commitment to mutual defense in the Far East and enhance the deterrent strength of the U.S. and Japanese security relationship."

The Holland

GD Flashback

U.S. Holland Set Stage for Navy's Undersea Fleet

Theodore Roosevelt was a big booster of one of General Dynamics' early endeavors, although he did have this to say about it:

"Sometimes she doesn't work perfectly, but often she does, and I don't think that in the present emergency we can afford to let her slip."

The 'she' he referred to was the *Holland*, which later became the U.S. Navy's first operational submarine. Roosevelt, then Under Secretary of the Navy, made his remarks in a letter on April 10, 1898, to John D. Long, Secretary of the Navy. Roosevelt's note urged the Navy to purchase the 54-foot long undersea boat invented by John P. Holland, a pioneer submariner.

The revolutionary cigar-shaped, metal boat, powered by a 50-horsepower internal combustion engine and a 50-horsepower electric motor, was able to make seven knots submerged and eight knots on the surface. She had one torpedo tube, an inclined dynamite gun and a crew of five in a cramped, cluttered interior. Yet, her operating principles and design set the pattern for most of the world's future submarines.

By 1891, when he formed the John P. Holland Torpedo Boat Co., Holland had already built four submarines in perfecting his design. In 1895, the Navy awarded Holland a contract to build its first submarine, but according to its own specifications.

Holland had serious misgivings about the Navy's "unrealistic" requirements for the new 85-foot long boat, the *Plunger*, and constant design changes by the Navy added to the cost of construction without adding anything to her performance. So, long before the *Plunger* was completed, Holland began to build a smaller and simpler submarine of his own design.

True to Holland's predictions, the cumbersome *Plunger* proved to be a failure. The large boat was propelled by steam on the surface and by electricity submerged, and dual propulsion became the standard. But the steam plant specified by the Navy was so large that her crew could not stand the heat. The *Plunger*, completed in 1897, never got beyond her dock trials and finally was abandoned in 1900.

Holland, meanwhile, had decided to use a 50-horsepower gasoline engine for surface power. This proved to be a crucial design change, and the internal combustion engine set an important precedent for many of the submarines to come.

The *Holland* was launched on May 17, 1897, and her inventor immediately offered her to the Navy, which refused despite Roosevelt's favorable recommendation. However, fortunes changed for the little boat on Feb. 7, 1899, when lawyer-financier Isaac Rice took over Holland's company and his invention. Rice merged Holland's company with another to form the Electric Boat Co., which eventually became General Dynamics' parent division.

After a series of exhibition runs by the *Holland* on the Potomac River at Washington, D.C., and also successful official trials, the Navy finally bought her on April 11, 1900. Although the Navy's entire submarine fleet then consisted of only one boat, she was, however, the most advanced submarine in the world.

Although she never saw combat — since the Navy had delayed its purchase until after the Spanish-American War — the USS *Holland* did show what she could do in peacetime. During maneuvers in the Atlantic in 1900, she pulled up against the side of the "hostile" fleet flagship and surfaced. Her captain shouted to the men on the flagship, "Hello, *Kearsage*, you are blown to atoms. This is the *Holland*."

John Holland left the Electric Boat Co., in 1904 and died an invalid in 1914. After its service with the Navy, his little submarine was exhibited at Philadelphia, Atlantic City and finally in Starlight Park in the Bronx.

When the park was sold in 1930, the *Holland* was purchased for $100 and then scrapped. It was a sad ending for the boat that laid the groundwork for today's U.S. Navy submarine force.

Chief Of Naval Operations Stresses Importance Of Deterrence

Adm. James D. Watkins, Chief of Naval Operations, spoke of the vital contribution of the Ohio-class submarines in maintaining national security in his remarks at the launching of the Georgia. *His thoughts on this important subject follow:*

* * *

The entire Trident program is centered around maintaining a credible world peace through national strength. This program's operational successes have put muscle behind these words. To date, these ships have met or exceeded all technical requirements.

These submarines, larger than a World War II cruiser, are the most effective warships of their kind in the world. And when the Trident II missile comes on line in the late 1980s, our most invulnerable leg of the Strategic Triad will possess a missile with greatly improved accuracy that could be applied against hardened military targets — providing new options to our national command authority.

Georgia will sail the steady track of her sister ships — and she will sail as an instrument of peace, not war. Some critics yell 'foul' and say that this position smacks of naiveté. They complain we do not realize the potential destruction capability aboard this submarine. But that is wrong — it is exactly this knowledge that brought her to life.

That's deterrence — preserving peace through strength. This policy is founded on a determination to avoid use of nuclear weapons. Since evidence is accumulating that Soviet strategic thinking holds that situations exist in which nuclear war is winnable and preferable to the alternative — it is necessary to keep the level of deterrence extremely high. *Georgia* — and the rest of her class — will do just that. We must look at this submarine —and its potential — in that light. I want it to be written by future historians that tomorrow's battle which wasn't fought was the most important battle we fought in the 20th century.

This is the paradox of deterrence —the awesome weapons which will sail aboard this ship are best employed by never being launched. You help ensure peace by their presence, avoid war by their existence.

Today, the temptation is strong to reduce American opinion on the nuclear issue to simple propositions — such as an "X" on a ballot means immediate freeze.

The tough question is how to transform good intentions into practical results, a much harder job than writing ballot propositions.

We are all concerned about nuclear weapons. Americans everywhere would like to see steps taken to curtail their proliferation. This commitment isn't new. American opinion on nuclear weapons and war has changed scarcely at all over nearly four decades. But, as appalled as the public is about nuclear weaponry, it has historically accepted a strong strategic posture because of no realistic alternative to heavy reliance on such weapons in the country's defense. The main reason for this is that the public considers the Soviet Union an untrust-

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GD World

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Second F-16XL Begins Flight Test Program

The first flight of the two-seat F-16XL, an advanced version of the F-16 that incorporates a new aerodynamic configuration, was successfully made at Fort Worth on October 29th.

Company test pilots Alex Wolfe and Jim McKinney were in the front and back seats, respectively, for the initial hour-long flight. The aircraft was flown at a top speed of Mach 1.4 at an altitude of 30,000 feet during its first flight.

The initial flight of the the two-seat F-16XL followed the first flight of the single-seat aircraft by little more than three months. The first F-16XL was flown July 3rd, the day after it was formally rolled out.

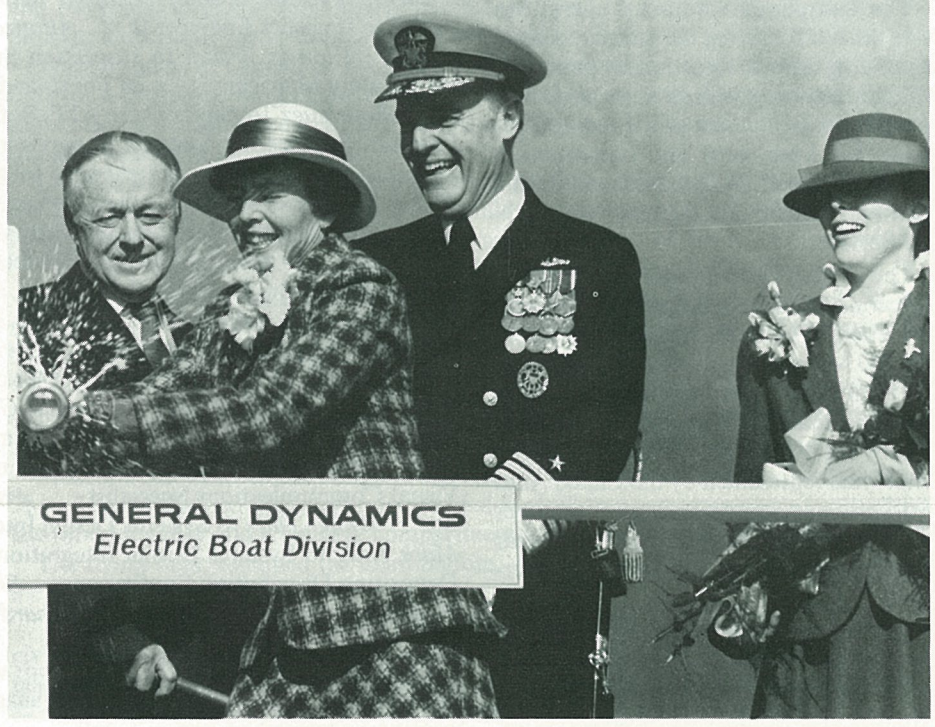
By the beginning of November, the first F-16XL had been flown by six different U.S. Air Force pilots and two company pilots a total of 78 times.

"The first F-16XL is meeting or exceeding all our performance predictions in the flight test program," said Randy Kent, Fort Worth Vice President for the F-16XL Program. "Because of its high readiness rate, and with the ease of maintenance that we are experiencing, our evaluation program is ahead of schedule."

The principal difference between the two F-16XL aircraft, besides the one- and two-place canopies and cockpits, is that instead of the Pratt & Whitney F-100 afterburning turbofan engine, which powers the single-seat aircraft, the two-seat F-16XL is powered by a General Electric F101 Derivative Fighter Engine.

The F-16XL is an evolutionary aircraft that is based on the operationally proven F-16 Falcon.

The most distinctive feature of the F-16XL is the new, highly swept cranked-arrow wing that was developed by General Dynamics in collaboration with the National Aeronautics and Space Administration. Two plugs totaling 56 inches were also added to the fuselage to accommodate the graphite wings.



Ship's Sponsor. *Mrs. Sheila Watkins christens the* Georgia *watched by her husband, Adm. James D. Watkins, Chief of Naval Operations; her daughter and Maid of Honor, Susan Elizabeth Watkins, and David S. Lewis, Chairman of General Dynamics.*

Mrs. Sheila Watkins Christens Georgia, 4th Ohio-Class Sub

The 3,200 spectators on hand for the launching of the nation's fourth Trident submarine, *Georgia*, November 6th at Electric Boat's Groton, Conn., shipyard heard Adm. James D. Watkins, Chief of Naval Operations, call for a "practical course" to nuclear arms reduction while maintaining the military strength of the United States. (The complete text of the Admiral's remarks appears above.)

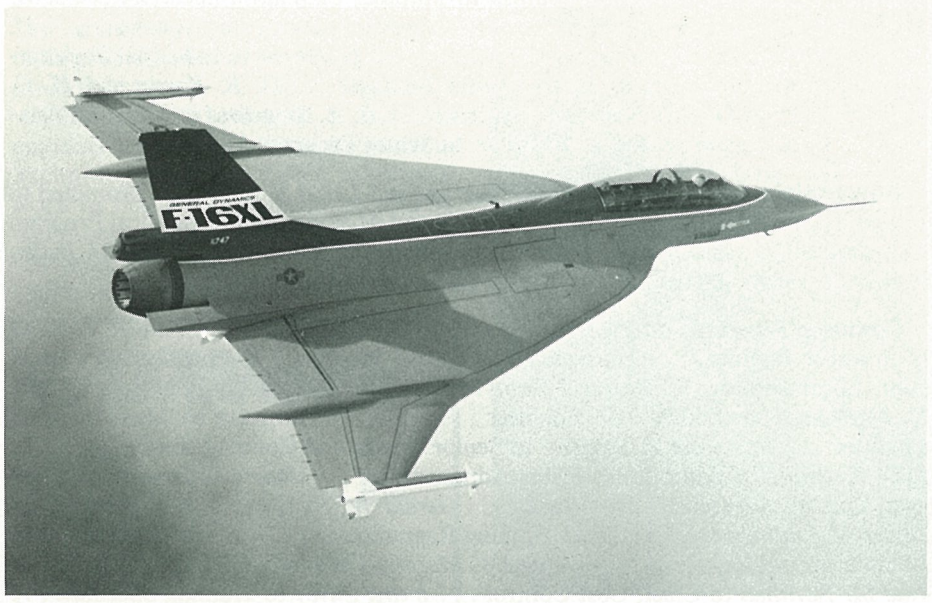
Distinguished visitors participating in the ceremony included: U.S. Senator Mack Mattingly, Republican of Georgia, and George A. Sawyer, Assistant Secretary of the Navy for Shipbuilding and Logistics.

Sen. Mattingly, in his remarks, said, "Many experts with good reason consider the Trident program the most important element of our nation's defense Triad. The ships will . . . serve as a mighty deterrent to foreign aggression well into the next century."

"Those of us both in government and out who are concerned with maintaining a strong defense are faced with a challenge," the Senator continued. "Defense spending is no longer sacrosanct in Washington, and that is the way it should be. Every dollar of the taxpayers' money should be carefully spent, and every program must be able to stand close scrutiny.

"More than ever, we must carefully weigh every dollar going into defense. There are those who would love nothing more than to have fresh examples of wasteful defense spending, but we must rebuild the defense of this country. The people will support us as long as we spend our hard-earned money wisely."

Mrs. Sheila Watkins, wife of Adm. Watkins, christened the 560-foot, 18,750-ton vessel, smashing a bottle of champagne on the after edge of the superstructure. The *Georgia* (SSBN 729) lay moored in the shipyard's huge graving dock in the land level construction facility especially designed to construct Tridents.



The Two Seat F-16XL

Convair GLCM Carries Out Third Operational Test

A U.S. Air Force/Convair Tomahawk ground-launched cruise missile carried out its third operational test and evaluation flight over the Utah Test and Training Range on November 12th.

The GLCM was launched from its transporter-erector-launcher and after a successful boost and transition to cruise flight, the missile used its low-altitude, terrain-following capabilities to fly a fully guided mission over the range.

All test objectives were met including use of common weapons control system used in both ground and surface ship programs. Upon completion of the flight a parachute system was activated and the missile was recovered. It will be refurbished for future use in the GLCM test program.

Current plans call for the 1,500-mile-range GLCM to be operated by the U.S. Air Force in Western Europe. Each GLCM unit will include four transporter-erector-launchers and two launch control centers for prelaunch command and control of the missiles. Each transporter is capable of launching four Tomahawks. The GLCM weapon system is scheduled for operational deployment to the United Kingdom in 1983.

Earnings Show Increase During Third Quarter

General Dynamics on November 4th announced that earnings from continuing operations for the third quarter of 1982 were $56.7 million, or $1.03 per common share, up 35 percent over the $42.0 million, or 77 cents per share, for the third quarter of 1981. Net earnings for the third quarter of 1982, including discontinued operations, were $51.4 million, or 94 cents per share, compared to $36.9 million, or 67 cents per share, for the third quarter of 1981.

Earnings from continuing operations for the first nine months of 1982 were $96.4 million, or $1.75 per share, compared to $109.8 million, or $1.99 per share, for the same period a year earlier. This decline reflects the company's action in the second quarter to write off $56 million ($1.03 per share) to cover anticipated cost overruns on the first two contracts for SSN 688-class submarines at the Electric Boat Division and to cover cost overruns on the construction of a coal collier and unabsorbed overhead costs at the Quincy Shipbuilding Division.

Sales from continuing operations during the third quarter and nine months of 1982 were $1.55 billion and $4.32 billion, respectively, compared with $1.19 billion and $3.53 billion in the same periods a year ago. Sales from discontinued operations were $198.1 million in the first nine

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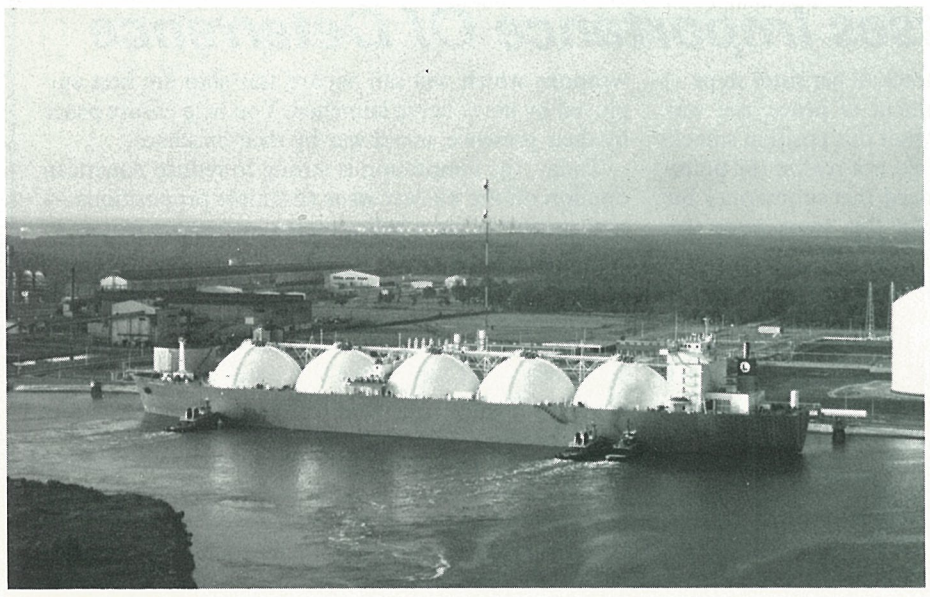


LNG Arrival. *The U.S. flag vessel* Lake Charles *is docked by tugs in preparation for unloading 125,000 cubic meters of liquefied natural gas (LNG) at the Trunkline LNG terminal at Lake Charles, La. The 936-foot tanker and sister-ship* Louisiana *will be used to transport LNG from Algeria to the southern coast of the United States. The ships were built at Quincy Shipbuilding for Lachmar, a partnership of subsidiaries of Panhandle Eastern Gas Co., General Dynamics and Moore McCormack Resources.*

Continuing Operations' Earnings Increase 35 Percent in Quarter

Continued from Page 1

months of 1982 compared to $214.2 million for the same period in 1981.

Funded backlog at the end of the 1982 third quarter was $13.1 billion and funded and unfunded backlog was $13.7 billion.

"The disposition of the company's telecommunications operations, which began in late July with the sale of General Dynamics Communications Company and the two principal manufacturing units of Stromberg-Carlson, was completed by the sale of the remaining units, American Telecommunications and the Telephone Systems Center, on October 1st," said David S. Lewis, Chairman and Chief Executive Officer. "The latter units were profitable throughout the year, but their earnings were more than offset by losses at Stromberg-Carlson and GDCC prior to their sale.

"All continuing lines of business were profitable in the third quarter," said Lewis. "The aerospace group led the way with record earnings for the second consecutive quarter, supported by improved results at Electric Boat and at Land Systems Division.

"With the second quarter write-offs in the marine group behind us, we are encouraged by the steady progress being made by Electric Boat in meeting schedules on the fast-attack and the Trident ballistic missile submarine programs, and by the recent important U.S. Navy charter contract award to Quincy for construction of new TAKX prepositioning ships for the Rapid Deployment Force," Lewis said.

"Quincy now has two of the TAKX ships under firm contract and the Navy is expected to exercise its option for an additional three ships in the next two months. The five-ship program would increase the division's backlog by $770 million," Lewis said. "Under the terms of the charter agreement, the company will build the ships and have responsibility for the ownership, financing and operation of the ships, which will be chartered to the Navy for up to 25 years."

The company's resources operations were profitable during the quarter, despite continuing adverse recessionary pressures. Material Service earnings were particularly noteworthy, in view of the reduced demand for lime, coal and construction materials faced by Marblehead Lime, Freeman United Coal Mining and Material Service.

Lewis said Land Systems Division in its second full quarter as an operating unit of General Dynamics delivered 100 M60 and 130 M1 main battle tanks. This brings the total of M1s delivered to over 600 of the more than 7,000 planned for acquisition by the U.S. Army. A 12-day strike by employees represented by the United Auto Workers was settled in late September with the ratification of a new three-year labor agreement by the union membership.

The record third quarter earnings of the company's aerospace group were led by the Fort Worth Division, with Convair, Pomona and Electronics all showing improved results over the 1981 quarter.

Fort Worth extended its record of on-cost and on-schedule F-16 production with the delivery of 68 aircraft from the production lines at Fort Worth, Belgium and the Netherlands during the quarter.

A recent highlight in the F-16 program was the ahead-of-schedule delivery of the first of 40 F-16s ordered by Pakistan which became the eighth nation to begin equipping its Air Force with the multi-mission fighter. Through October 31st, 812 F-16s had been delivered to the Air Forces of the eight countries.

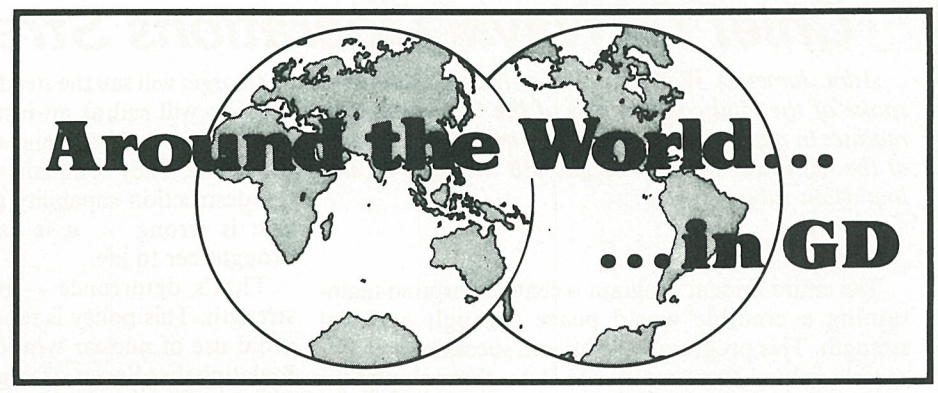
Fixed Income Fund

The effective annual yield for the Fixed Income Funds of the General Dynamics Savings and Stock Investment Plan will increase in 1983. The yield will gradually rise from 11.5 percent at the year-end 1982 to approximately 11.9 percent at year-end 1983. This marks the fifth consecutive year that the return on the Fixed Income Funds assets has increased.

Savings and Stock Investment Values

	Sept. 1980	Sept. 1981	Sept. 1982
Salaried			
Government Bonds	$ 2.4397	$ 2.6551	$ 3.1786
Diversified Portfolio	1.9671	1.9331	2.1060
Fixed Income	1.1258	1.2494	1.3913
Hourly			
Government Bonds	2.4374	2.6522	3.1762
Diversified Portfolio	2.0068	1.9745	2.1497
GD Stock	$34.2500*	$22.2500	$32.5000

* Reflects 2 for 1 stock split of November 1980.



CHQ: *Wayne J. Maiers* and *Edward Venteicher* joined as Internal Auditor . . . *David J. Martz* transferred from Electronics and was promoted to Pricing Specialist.

Convair: *Richard C. Christopher* was promoted to Group Supervisor . . . *William B. Maffucci* to Engineering Chief . . . *Edward L. McCaslin, Tony A. Meitler* and *Vincent I. Gosa* to Operations Supervisor—Manufacturing . . . *Pasqual Perrone* to Administrative Chief . . . *Susan A. Albert* to Material Liaison Representative . . . *Ronald I. Buccellato* to Operations Supervisor—Industrial Engineering . . . *David D. Rousey* to Superintendent . . .*Charles F. Krasovic* to Senior Accounting Analyst . . . *Clifford I. Martin* to Logistics Supervisor.

DSD: At Western Center, *W. C. Pickett* and *L. D. Rude* were promoted to Supervisor—Data Systems . . . at Central Center, *M. K. Fox* and *M. L. Langevin* were promoted to Supervisor—Data Systems . . . *J. H. Gault* and *M. W. Hedgepeth* to Supervisor—Engineering Software . . . *W. D. Griffin, J. G. Snodgrass, T. S. Brown, W. R. Wilshire, A. M. Sherman* and *J. S. Barron to Chief—Engineering Software* . . . at Eastern Center, *J. Glover* was promoted to Chief—Financial Control.

Land Systems: *Dennis Osenton, Kenneth Jurn* and *Hyman Treitman* were promoted to Logistics Engineer B . . . *Alfonzo Brooks Jr.* to Fabrication Assembly Foreman . . . *Thomas Brandt* to Inspection Supervisor . . . *Joseph Yost Jr.* to RAM-D HFE Safety Manager . . . *Juan Borgis* and *Gary Essary* to Technical Data Writer . . . *John Rodriguez* to Supervisor, ATE Software Management . . . *Robert Tampa* to Logistics Engineering Systems Supervisor . . . *Russell Smith* to Major Subcontract Administrator . . . *Jerry Boughton* to Internal Audit/Special Projects Supervisor . . . *Richard Baginski* to Defense Accounting Regulations Analyst . . . *Robert Schwarcz* to Accounts Payable/Bookkeeping Supervisor . . . *Alfred Carson* to Welding General Foreman . . . *Winfred Didlake* to Production Superintendent . . . *Glenn Krietzer* to Material Handling General Foreman . . . *David Robinson* to Material Control Superintendent . . . *Ronald Boberg* to Methods & Standards Engineer A . . . *Mark Roualet* to Quality Engineering Specialist . . . *Harold Trauger Jr.* to Inspection Foreman . . . *Steven Sorger* to Supplier Quality Liaison Specialist . . . *Frank Kottusyk* to Staff Plant Engineering Manager . . . *Gerald Genaw* to Manufacturing Advance Planning Manager . . . *Francis Rupersberg* to Plant Security and Investigation Administrator . . . *Robert Nagy* to Plant Engineering Supervisor . . . *Robert Rannebarger* to Visual Communications Specialist . . . *Arthur Emery* to Industrial Relations Specialist . . . *Walter Fales* to Systems Design Integration Supervisor . . . *Russell Ellison* and *Mark Kelly* to Systems Design Integration Specialist . . . *Randle Sutherland* to Data Depositing Distribution Supervisor . . . *Shirley Boyd* to Payroll, Timekeeping, CWO Property Expense Supervisor . . . *Richard Proof* to Industrial Security Supervisor.

Quincy Shipbuilding: *E. Sklavounos* was promoted to Superintendent of Outside Machinists . . . *Warren Freeman* to Manager, Electrical Engineering . . . *A. Sproul* to Marine Engineering Chief.

Electric Boat: *Ronald Sanok* was promoted to Nuclear Ship Manager . . . *David Staley* to Industrial Services Supervisor . . . *William Tomolonius, Terrence Danielson, Peter Marblo* and *Frank Capizzano* to Engineering Supervisor . . . *David Halbach, Peter Anderson, William Belisle, Garry Delea, George Fry, Phillip Gallagher, David Gauthier, Johan Haarman, Keith Hayden, Aidan McLernon, Mark Page, Michael Ryan, Jeff Salvie, David Sproul* and *Gary Vogel* to Foreman . . . *Brian Huard* to Radiological Control Shift Supervisor . . . *Robert King* and *Robert Schmidt* to Senior Field Engineer, Reactor Plant Services . . . *Louis DeMartino* to General Superintendent . . . *David McClary* to Director of Quality Systems . . . *Robert Landry* to General Foreman.

Fort Worth: *B. G. Arms, E. L. Lee, L. H. Libby* and *H. M. Rains* were promoted to Chief of Logistics . . . *W. W. Brown, W. A. Guinn,* and *J. E. Rogers* to Assistant Project Engineer . . . *R. J. Caughlin* to Chief of Estimating . . . *P. Chovanec* and *J. M. Stafford* to Senior Manufacturing Technology Engineer . . . *J. W. Conway* to Administrative Services Supervisor—Publications . . . *W. R. Cummings* to Engineering Group Supervisor . . . *G. L. Davis* and *W. R. King Jr.* to Manufacturing Technology Supervisor . . . *D. A. Elliff* to Senior Engineer . . . *P. E. Estrada* to Senior Program Estimator . . . *E. P. Everitt Jr., R. L. Jones, E. R. Murphy* and *M. T. Wyatt* to Field Service Engineer . . . *C. A. Foster, W. E. Kinyon, R. C. Short* and *E. A. Williams Jr.* to Manager of Logistics . . . *G. P. Fox* to Senior Field Supply Analyst . . . *R. Garcia* to Foreman . . . *D. G. Javes* to Material Planning Supervisor . . . *J. R. McKenzie Jr.* to Engineering Chief . . . *M. T. Nunlee* to Inspection Supervisor . . . *D. P. Partido* to Principal Field Service Engineer . . . *J. G. Paseur* to Industrial Engineering Supervisor . . . *J. Rach, Jr.* to Project Manager . . . *D. R. Santin* and *H. C. Wilson* to Senior Quality Assurance Engineer . . . *R. A. Stensland* to Financial Analyst . . . *W. S. Turpin Jr.* and *L. Wimp Jr.* to Senior Program Analyst.

Electronics: *James E. Burnett, Ray Garriott* and *Lloyd S. Mills* were promoted to Senior Engineering Specialist . . . *Lois Dixon* and *Mike Shonk* to Logistical Program Coordinator . . . *Chuck W. Ebeling* to Senior Program Manager . . . *James G. Pullen* to Section Head—Operations . . . *Ralph H. Steiger* to Superintendent.

Pomona: *Francis E. Adams* was promoted to Group Engineer . . . *Paul R. Emielita* to Research Engineer . . . *Lawanda P. Erwin* and *Marleen F. Hernandez* to Procurement Administrator . . . *Gloria J. Good* to Standards Laboratory Engineer . . . *Guy S. MacKnight* to Senior Test Engineer . . . *Susan M. Simpson* to Manufacturing Engineer . . . *Raymond E. Sweitzer* to Senior Design and Construction Engineer . . . *Dale E. Banke* to Education Services Administrator . . . *Ralph J. Creamer* to Manager, Quality Assurance—East Valley . . . *Gerald W. Hawes* to Superintendent . . . *James N. Ludington* to Technical Training Representative . . . *Daniel E. Madison* to Manufacturing Supervisor . . . *Donald W. Martin* to Manager, Quality Assurance . . . *Rae M. Rottman* to Chief, Cost Control . . . *Irving Silvey* to Training Specialist . . . *Donald E. Briney* to Packaging Group Engineer.

Space Shuttle Enterprise Begins Series of Structural Fatigue Tests

In 1975, Convair delivered the first of five midfuselage sections for NASA's Space Shuttle. That first fuselage section which went to make up the vehicle called "Enterprise" was not scheduled to go into space, but has been used to perform ground and atmospheric flight tests that were held prior to the first orbital mission.

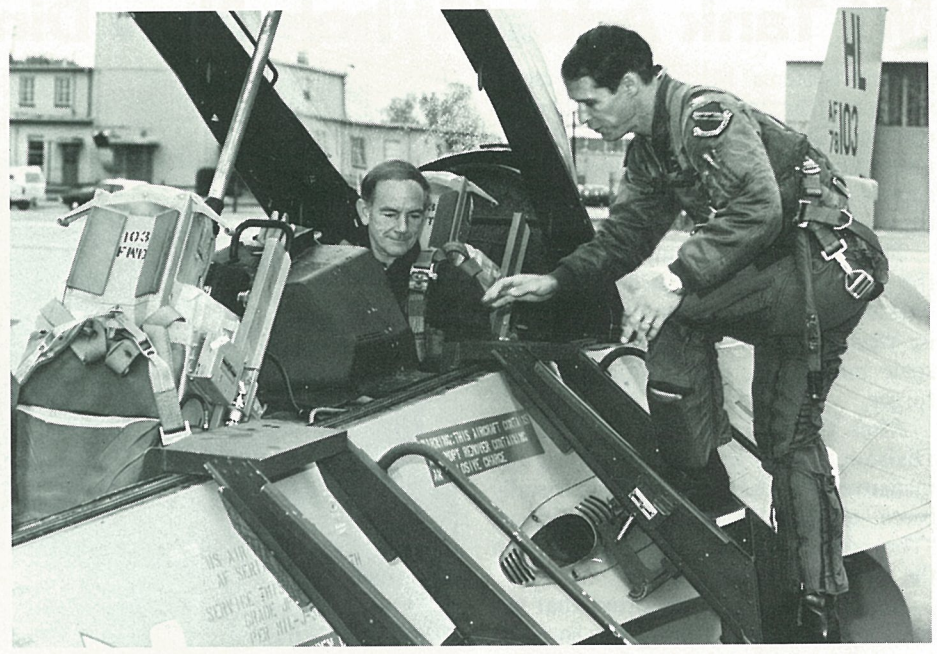
Now, Enterprise is beginning another series of tests at NASA's Dryden Flight Research Facility at Edwards AFB, Calif. It is serving as a testbed for engineers who are developing a way to forecast and prevent structural trouble spots that may result from wear and tear over years of service.

Because all pre-Shuttle spacecraft were single-mission vehicles, structural fatigue was not a major consideration. However, since each one of the four operational Shuttles is scheduled to fly 100 or more missions, NASA wants to find an efficient and reliable way to detect potential trouble spots before they develop into problems. The method must locate weaknesses without damaging the orbiter's structure.

By use of a technology called modal analysis, NASA engineers are using electromagnetic shakers to apply forces to parts of Enterprise's surface, and accelerometers attached to numerous points over the surface pick up the structure's response to the shaking and feed it into a computer.

Modal analysis allows engineers to track changes in frequency caused by damage from the repeated journeys into space. By establishing base-line data from Enterprise, engineers can compare data from the other orbiters and know that changes in the characteristics indicate likely damage. Computer-assisted study of the changes would enable them to pinpoint and correct the damaged area.

If the results from the tests being run on Enterprise this fall are valid, data will be obtained for future comparisons.



Senator's Visit. *U.S. Senator J. Bennett Johnston, Democrat of Louisiana, is briefed by USAF Maj. Dick Allain prior to an F-16 orientation flight during his visit to Fort Worth late last month, which included a review of the division's major programs.*

Electronics to Build Assault Vehicle Training System

Electronics has been awarded a contract for nearly $1 million from the Naval Training Equipment Center to develop a low cost driver training system for the Marine Corps LVT-7A1 assault amphibian vehicle.

The training system, to be installed at Camp Pendleton, Calif., will have five simulated driver stations, controlled by a single computer.

R. H. Plummer, Electronics Project Manager, says that the trainer design is based on the use of a video disc-based system with overlaid computer-generated graphics. The computer selects for display any of the 54,000 individual video frames and controls the overlay graphics which direct or prompt the trainee.

The system will provide training for the operator from starting the vehicle through its operation over varied land and water courses. Realistic "dashboard" displays are provided, plus a sound synthesis system to simulate engine, transmission, and other vehicle sounds. The video system will provide realistic scenes of the terrain over which the vehicle is being "driven."

W. G. Phillipp Named Director Of Atlas Programs

W. G. Phillipp has been appointed Program Director - Atlas Programs, at Convair. In this capacity, Phillipp will be responsible for managing all aspects of the Atlas E program as well as Convair's operations at Vandenberg AFB, Calif., and launch support of the Atlas H program.

He joined General Dynamics in 1956 as a Flight Test Engineer at the Eastern Test Range. In addition to a series of increasingly responsible positions at the Eastern Test Range, Phillipp has also been active in the test and evaluation program on the Tomahawk Cruise Missile. His most recent position was Engineering Director - Test and Evaluation, responsible for directing all test efforts supporting the division's programs.

Phillipp holds a degree in electrical engineering from Indiana Institute of Technology and has taken additional work in business administration and in computer programming from both Florida State University and University of California in San Diego.

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GD Flashback

Commodores Helped Pioneer Airline Service

In the mid-1920s, the Consolidated Aircraft Corp. established itself as the premier builder of two-seat trainers for the U.S. Army and Navy, and in 1927 it took a large gamble that paid off handsomely. It decided to branch out into the production of very large aircraft, a decision which resulted in Consolidated's building the world's first commercial flying boat, the Commodore, Model 16.

The company, in December 1927, was building two-seat Husky trainers at its Buffalo, N.Y., plant when the Navy invited industry bids for a prototype long range, twin-engine patrol flying boat. Since Consolidated's only experience in aircraft manufacturing at that time was in fabric-covered biplanes, it hired Isaac M. (Mac) Laddon away from the Army Air Corps, where he was the top designer of large military aircraft.

Laddon immediately was assigned to design the flying boat, and his efforts resulted in the XPY-1 Admiral. Consolidated won the bid and received a $150,000 contract to build the prototype. Consolidated's first flying boat, which was powered by two 420-horsepower Pratt & Whitney Wasp engines and had a crew of three, was completed in December 1928.

The Navy liked the XPY-1 but surprisingly solicited bids for production aircraft from the entire aircraft industry. Disaster struck as Consolidated was underbid by the Glenn L. Martin Co. Martin eventually built nine of the aircraft as the P3M . . . and lost money on the deal. The Navy later changed its procurement policy and thereafter bought production aircraft from the company which had built the prototype.

Fortunately for Consolidated, which had already been tooling up to make Admirals, it previously had been approached about designing a commercial flying boat. Ralph O'Neill, a World War I fighter ace and founder of NYRBA, the New York-Rio-Buenos Aires Line, Inc., said he needed six long-range civil transports for his new coast-hugging, 7,800-mile-long route.

Since the Navy owned the design of the XPY-1, Laddon went back to the drawing board. He redesigned the hull into a luxurious 20-to-33-passenger configuration. He divided the hull into three passenger compartments with richly upholstered seats and included lavatories, a galley and a baggage compartment and replaced the Wasp engines with 575-horsepower Pratt & Whitney Hornets.

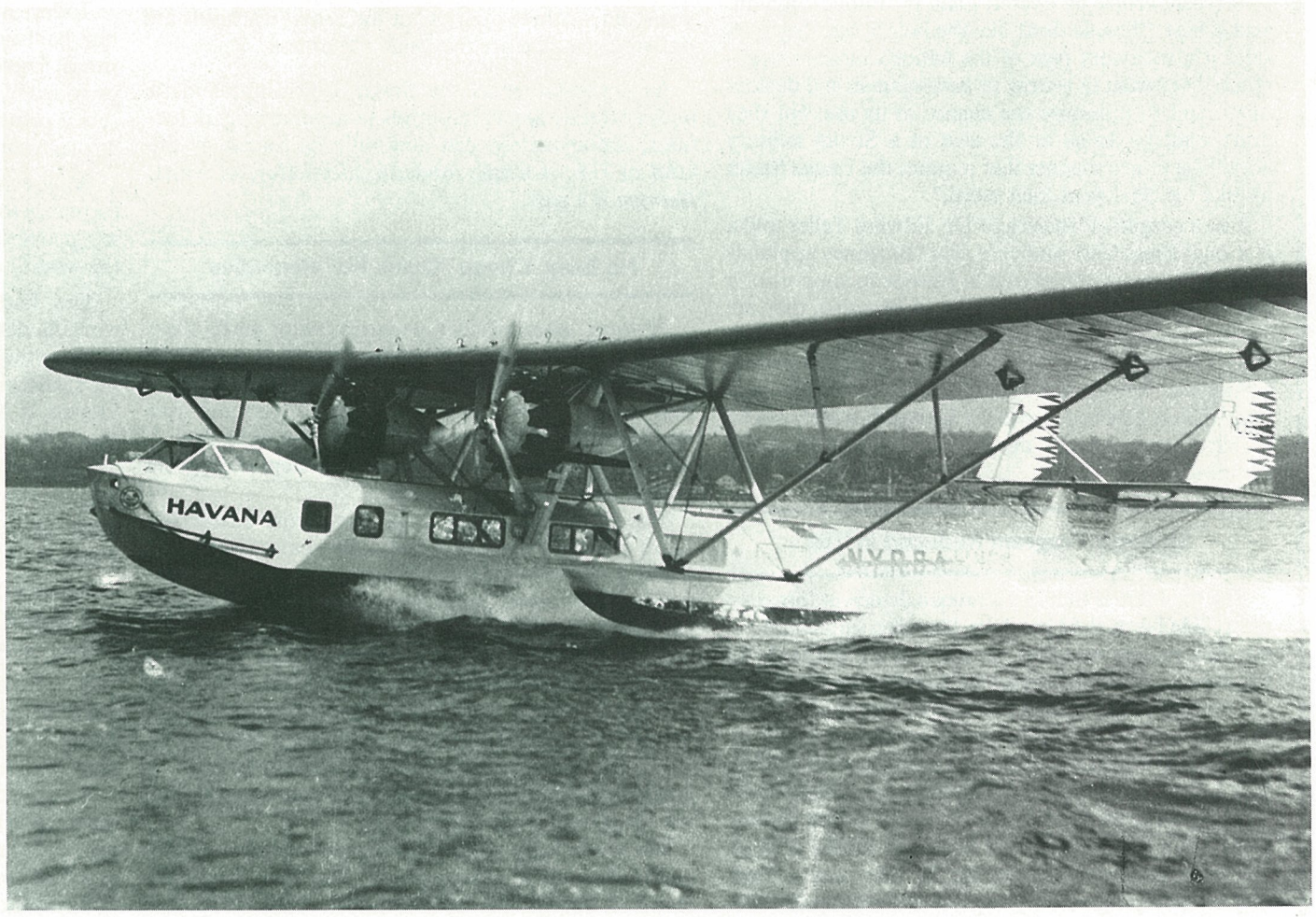
The flying boat, renamed the Commodore, was a huge plane — with a wingspan of 100 feet — and was called a "Leviathan" of the air.

The Commodore cruised at more than 100 miles an hour and had a range of more than 1,000 miles. The price was $125,000 each. The civil prototype made its first flight in September 1929, and the wife of President Herbert Hoover — with a bottle of prohibition-permitted, nonalcoholic sparkling cider — christened NYRBA's first plane the "Buenos Aires" on Oct. 2, 1929, at the Naval Air Station across the Anacostia River from Washington, D.C.

The initial fleet of six Commodores, which NYRBA advertised as "Flying Yachts," grew to 10 and early business was brisk. But NYRBA had no U.S. mail contract, a fact which proved fatal. On Sept. 15, 1930, the financially troubled NYRBA was sold to Pan American Airways. Pan Am paid between $97,000 and $106,000 for NYRBA's 10 Commodores and got four more directly from the factory.

Pan Am, which did have a U.S. mail contract, immediately turned the operation into a profit. The 14 Commodores flew between Jamaica and Panama, between Miami and Panama, between Miami and Rio de Janeiro and on other routes on the Pan Am system until 1935, when they began to be replaced by "Clipper" ships. Pan Am sold some of the planes and kept a few at Miami as trainers. Most of them remained in service into World War II, and a couple survived until 1945.

Consolidated, meanwhile, used its experience with the XPY-1 to good advantage. It went on to become the principal supplier of military flying boats to the U.S. Navy until that type began to be phased out during World War II.



The Consolidated Aircraft Commodore "Havana"

M1 Tank Adds "Whole New Dimension" to Combat Capability

Land Systems' M1 main battle tanks, which participated in a NATO field exercise in Europe recently, received high praise from U.S. Army personnel for their superior battleworthiness and reliability in the exercise.

Three M1 Abrams tank battalions of the 3rd Infantry Division deployed 174 M1s under simulated combat conditions in West Germany in September in full-scale maneuvers, called Operation Reforger.

After the exercise, the 3rd Infantry Division, which was known during the maneuvers as the Marne Division friendly force, compiled a preliminary critique, "The Marne Division. Reforger 82," on the two-week exercise.

Combat personnel reported that the M1's operational capability was so much better than expected "that it required a new perspective on mounted combat by players and umpires alike" in the exercise.

According to the critique, the M1 Abrams proved its ability to attack enemy targets while moving cross-country at high speeds and to maintain visibility in dense fog, dust and darkness. The M1 out-maneuvered and out-scored all other tanks participating in the NATO combat exercise, including its predecessor, the M60A3 main battle tank.

The M1 is the most advanced tank in the Free World and the most thoroughly and severely tested tank ever fielded by the U.S. Army.

The Army has indicated a requirement of 7,058 M1s. More than 650 of them have been produced so far at Land Systems' Lima, Ohio, and Warren, Mich., plants, and a large number of them have already been deployed in West Germany.

Army personnel reported that "The M1 performed superbly throughout the exercise. It became clear early in our Reforger planning that the operational capability of the system was so much more than previously assumed.

"During the exercise, there was an initial tendency to treat it as 'just another improved tank,' but this changed as the exercise matured and the full potential of the M1 became apparent to all," they added.

"It is important to understand that what makes M1-equipped units 'different' — by an order of magnitude — is the tank's extraordinary capability to fire while on the move at high speeds (35-40 mph) with an accuracy and effectiveness — day or night — at least equal to that of the M60 tank firing from a stationary position. This same capability adds significantly to the tank's already substantial levels of survivability.

An M1 Main Battle Tank during Operation Reforger

"Add to this the survivability gained from the M1's special armor, as well as improved suspension and fire control system, and the potential inherent in the tank for a whole new dimension of combat capability is clearly evident."

The M1 units maintained a fully combat ready rate of over 97 percent throughout Operation Reforger. This performance, which was not even approached by the mature M60 tank, earned the M1 tank the highest praise of tank crews and commanders throughout the critique. The Abrams required only half as many engine replacements and one-fourth as many transmission replacements as did the 63 M60 tanks in the exercise. For all three M1 tank battalions participating in the maneuvers, only 65 maintenance actions were reported over the two week period. The repair efforts ranged from a few minutes to several hours. With the exception of three M1s, all tanks were returned to operational service within 24 hours or less.

The M1's performance in Operation Reforger also received praise from Secretary of the Army John O. Marsh, who said its speed, maneuverability, weapons systems and maintainability have brought a new dimension to tank warfare. He added that the best testimony on the M1 is the firsthand accounts of the crews which operate it.

The comments of M1 commanders, drivers, gunners and loaders were solicited for the critique, and some of their responses were reported. One M1 tank driver said: "We moved a lot faster and could get to points a lot quicker. We had the thermal sight advantage which allowed us to see the enemy from a long distance. On this movement we were able to do it because of the assets of the M1. We went over some pretty bumpy terrain which the M60 couldn't have stood."

"It seemed that the enemy didn't have a chance even though they had us outnumbered," an M1 loader observed.

"We were moving beautifully as a tank company," an M1 tank commander said.

The critique also solicited the opinions of the enemy, and continued:

"The Abrams-equipped units' capability to move quickly and quietly provided a remarkable element of surprise time and time again. Opposing forces repeatedly commented on the quick-breaking nature of the engagements caused by the M1s. According to one opposing force (Canadian) commander, 'One minute it's quiet with no contact, the next minute you are overwhelmed, swarmed with quick, whispering death.'"

Army Brig. Gen. James Dozier, who was an observer, commented that "the M1s were used like a fire brigade rushing all over the battlefield. The crews were wearing down before the tanks did."

The critique concluded that the tactical consequences of the M1 are "immense" and that tank tacticians must reshape their thinking because of the M1's capabilities.

"The conduct of mounted operations must change," the critique said. "It must literally take on the characteristics of aerial combat at every level down to the tank commander. The land navigation requirements of M1 units are much like those of aviation. Aerial scouts must be more closely integrated to act as advance eyes for fast-moving tank forces."

Operation Reforger showed that a change is needed in the "mindset existing among many that the employment of the M1 should conform to the doctrine developed for the slower, less-survivable M60 tank," the critique said. It added that the performance of the M1 has "profound implications for the tactics and command and control procedures required for effective employment — indeed, fullest exploitation — of M1-equipped units."

Flight Test Proves RAM Effectiveness In Poor Visibility

In a continuation of a series of flight tests, a RAM missile produced at Pomona has successfully intercepted a remotely controlled drone representing an antiship missile. It was the eighth successful flight test in the series.

RAM is a high firepower, lightweight, fast-reaction missile system designed to provide a wide range of ships with a defense against antiship missiles.

The test took place at White Sands Missile Range, N.M., and proved that RAM will be effective in a poor visibility environment. Additional tests are scheduled for later this year. Previous tests at White Sands have also demonstrated RAM's performance characteristics and resulted in the successful intercept of five drone targets.

RAM utilizes subsystems from two Pomona products — Phalanx and Stinger.

Chief Of Naval Operations Stresses Importance Of Deterrence

Continued from Page 1

worthy adversary that would unhesitatingly use nuclear superiority — or any other military advantage — as political leverage to allow their uncontested pursuit of hegemonistic policies.

A recent article by Everett Laad in "Public Opinion" said it best. "People don't like the bomb, but they consider it a necessary part of the nation's military deterrence. They want to restrict its development and deployment, and to minimize the chance of its use, but they don't want to do so at the cost of a Soviet military advantage or in a manner that requires the United States to take the Soviets at their word."

Just a couple of weeks ago Dr. Edward Teller told a National Press Club audience that "Brezhnev applauds when 750,000 people march in Europe in support of a freeze, but when a handful do so in Moscow, they are arrested before anything could be done." You recall that when seven people in Moscow dared to unfurl a banner calling for "bread, life and disarmament," they were immediately arrested. We in the United States should be thankful we can freely debate such controversial and complex issues.

Strategic Program Reduced in '70s

The problem is that our strategic deterrent forces — our ICBM force, B-52 bombers, Poseidon submarines — are '60s vintage weapons. In the '70s we reduced our strategic program substantially. In effect, we did freeze our force levels at that time and in return the Soviet Union increased its nuclear programs dramatically.

While we stayed with our third generation of ICBMs, they drove ahead to their fifth generation, and are now working on their sixth. From 1967 until *Ohio's* deployment last month, we did not build and deploy a single new ballistic missile submarine. In that same period, they built 60 progressively larger and more capable submarines, the Delta I, Delta II and Delta III, culminating in their new large 27,000-ton Typhoon class of ballistic missile submarines.

The result of our restraint is that over three quarters of our warheads are carried on launchers that are 15 years old — three quarters of the Soviet warheads are on launchers that are five years old or less.

As a consequence, the Soviet Union applauds a nuclear freeze. Soviet incentives to negotiate any reductions, unfortunately, can now only be forced by the kind of U.S. strategic modernization effort of which *Georgia* is a part.

No Easy, Cheap "Quick Fix" Remedies

Wishing away nuclear weapons won't make them disappear. The reality is that they do exist — and although we are working for their removal from the arsenals of the world — for the time being they are with us. There are no easy, cheap "quick fix" remedies — we must proceed cautiously, step by step, during the nuclear arms reduction process.

The Administration's Strategic Arms Reduction Talks initiative has as its basis the goal of achieving world peace and reduction of nuclear armaments. Contrary to what critics imply, we are committed to achieving significant reductions in nuclear arms.

I advocate peace through strength, not because I want to see nuclear weapons used, but precisely because I do not. The fact is — every sensible human being is opposed to nuclear warfare — and the public interest which has recently arisen after a period of dormancy is probably best described as a disagreement abut the best way to prevent such a war.

We in the Navy are moral men and women, willing to sacrifice for a lasting peace. The Blue and Gold crews of *Georgia* are of this caliber. They know that maintaining peace is a substantially harder task than going out into the streets and waving placards. For when their careers are successfully completed, they will have sacrificed upwards of five years under the water, away from home and family for this goal.

Today, over 2,100 patrols have been completed by our ballistic missile submarine force in the name of peace. These patrols in combination with the deterrence provided by their land and air Triad counterparts constitute a proven working system of deterrence that some ask us to now discard.

We are sailors of peace and put our record of performance forward as proof positive. I am very proud of my people — and the missions they perform around the world.

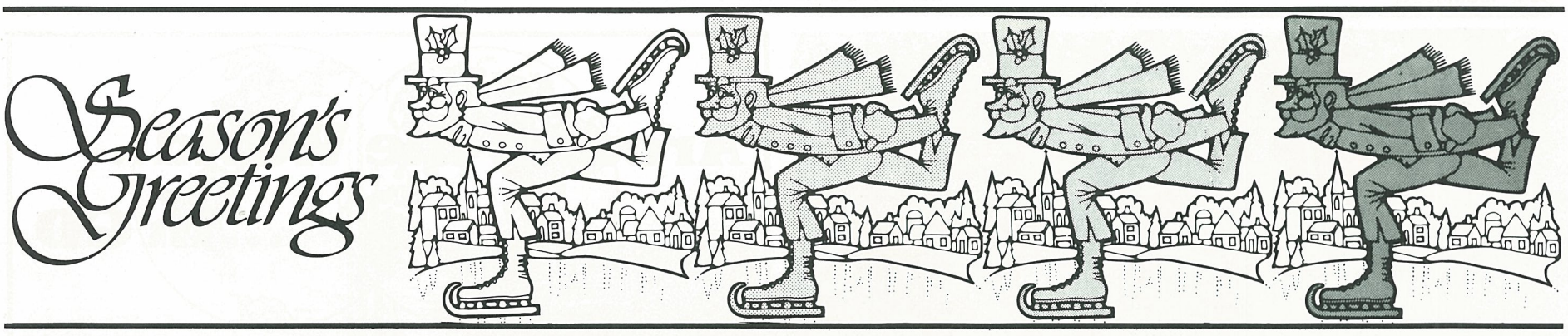
The Trident program is a bulwark to America's working deterrent posture which will last well into the next century. By augmenting our current ballistic missile submarine veterans with the capable *Ohio* class and Trident II missile, we can maintain peaceful effectiveness of this most invulnerable leg of the Strategic Triad.

Let's all pledge our unwavering support to ensure our deterrent strength remains alive, well and under way until an equitable nuclear arms reduction can be reached through bilateral negotiation — not unilateral.

Simplistic Solutions Arouse False Hopes

We cannot ignore the complexities of nuclear deterrence or the realities of international relations. Simplistic solutions only arouse false hopes leading to disillusion. We must chart a practical course.

We can do better than a freeze. Patience isn't too much to ask. Resolve is not too much to show. Until that time, men of *Georgia* will continue to sail the practical course for peace. God bless and protect them in their task.



GD World

Vol. 12 No. 12 December 1982

Sub-Launched Tomahawk Has Successful Test

A U.S. Navy/General Dynamics Tomahawk-Sea Launched Cruise Missile carried out a successful conventional land attack mission to the Tonapah Test Range in Nevada on December 3rd.

The development test originated with launch of the Tomahawk from the nuclear-powered attack submarine USS *Guitarro* (SSN 665) while cruising submerged off the California Coast. Powered by its air-breathing turbofan engine, the Tomahawk navigated a complex course over water, made landfall north of Santa Barbara and flew a fully guided mission over the inland route to the target area in Nevada.

Once inside the Tonapah Range, the missile demonstrated its precision terminal accuracy by hitting a simulated target more than 300 miles from the launch point.

* * *

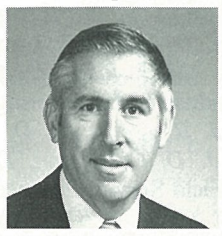
Five Executives Assigned to Key Posts at Convair

Five company executives are taking on important new assignments at Convair.

John E. McSweeny has been named Division Vice President and Deputy General Manager; Michael C. Keel, Division Vice President-Cruise Missile Program Director; Bernard J. Kuchta, Division Vice President-Chief Engineer-Cruise Missile Programs; Arthur J. Veitch, Division Vice President-Contracts and Estimating, and Bernard J. Wier, Director-Cruise Missile Production.

"These appointments are a further step in our ongoing effort to utilize more effectively the managerial and technical capabilities of Convair to meet the objectives of several important programs under contract," said Richard E. Adams, Corporate Executive Vice President-Aerospace.

McSweeny comes to Convair from Pomona, where he has been serving as Division Vice President and Deputy General Manager-Finance and Administration.

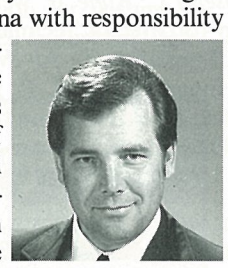


McSweeny

He joined General Dynamics at Pomona in 1961 as a Senior Electronics Engineer and has held a number of increasingly important positions, including Program Director for the Phalanx shipboard gun defense system.

A native of Burlingame, Calif., McSweeny received a Bachelor of Science degree in Electrical Engineering from Loyola University, Los Angeles, and a Master of Science degree in Electrical Engineering from the University of Colorado.

Keel has been serving as Division Vice President and Deputy General Manager-Operations at Pomona with responsibility for material acquisition and manufacture of all the division's products. A native of Los Angeles, Keel joined General Dynamics at Pomona in 1963 as an Associate Engineer and has been closely involved in the development and production of the Standard Missile.

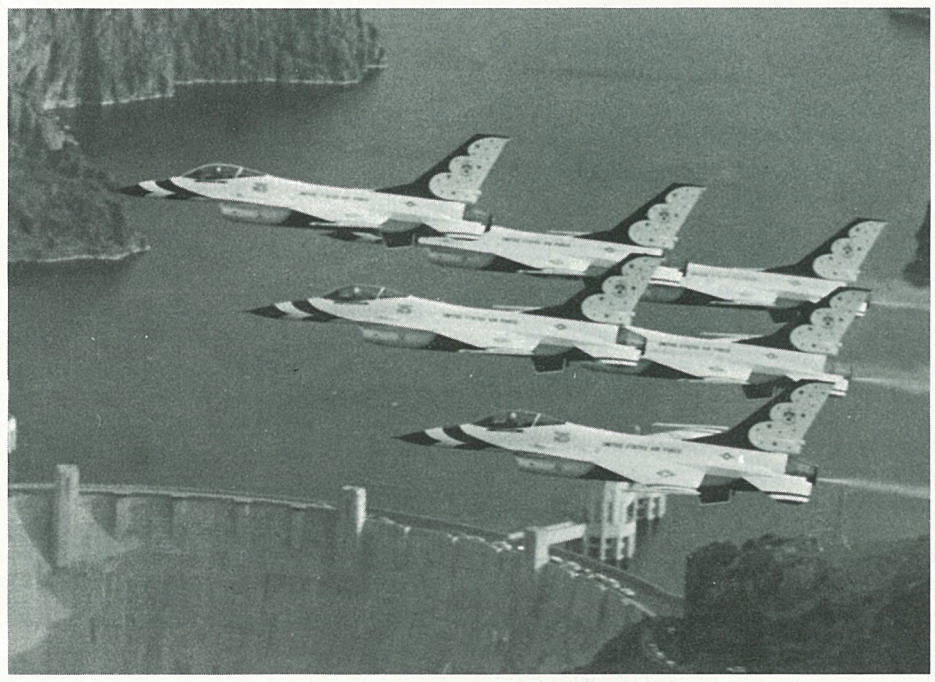


Keel

Keel was graduated from California

Continued on Page 4

On Display. *Against a backdrop of clear Nevada sky and Hoover Dam (below), the U.S. Air Force Thunderbirds demonstrate their precision flying skills with their latest aircraft, the F-16 Falcon. The team will open its 1983 season in March.*



World Famous Thunderbirds Are Now Flying the F-16 Falcon

The U.S. Air Force Air Demonstration Squadron, better known throughout the world as the Thunderbirds, has formally made the transition from the T-38 trainer to the F-16 Fighting Falcon, returning a combat operational concept to the team.

The transition, in which the eight F-16 aircraft were shown in their distinctive red, white and blue Thunderbird paint scheme publicly for the first time, was made at Nellis AFB, Nev., November 30th.

During a brief ceremony, held inside the Thunderbirds' hangar because of torrential rains outside, Maj. Gen. Jack Gregory, Commander of the Tactical Air Command's Fighter Weapons Center, also announced the first aerial show would be held March 12, 1983, at Nellis. The season will run through November 13th, and will feature 86 shows at 70 sites in the continental United States.

The new season will be the 31st for the all-volunteer squadron, whose members have also flown the F-84, F-100, F-105, F-4, as well as the T-38.

"Now, the F-16 will provide the team with the flexibility to perform the air demonstration role while also maintaining a full combat capability," said Maj. James D. Latham, Squadron Commander with more than 3,200 flying hours.

Before his selection as Commander/Lead Pilot of the team earlier this year, Maj. Latham was an F-16 Weapons and Tactics Officer and Flight Commander at Nellis AFB. He also flew 148 demonstrations as a Thunderbird team member between 1978 and 1980.

Maj. Latham said the Fort Worth-built F-16 is "impressive in its combat role and is equally impressive in its demonstration role.

"In addition to aerobatic maneuvering

Continued on Page 4

$1 Billion New Work Awarded To Electric Boat

The last two days in November were red-letter days for Electric Boat. It received more than $1 billion in new construction contracts from the U.S. Navy.

The first contract, which was announced November 29th, was for $531.6 million for a 10th Trident missile-firing submarine.

The second, announced late the next day, totalled $560.2 million for two more SSN 688 fast-attack submarines.

Fritz G. Tovar, Electric Boat Vice President, said the "contracts will help level the workload and maintain the present work force at Groton and Quonset Point."

Referring to the 688 contract, Tovar said, "We are especially pleased with the announcement since the award was won on a competitive bid basis between Electric Boat and Newport News."

Rhode Island Senator John Chaffee went further in remarking on the 688 contract: "Nothing could be better news for the workers at EB and for Rhode Island," he said, adding that he felt the contract means the Navy is "clearly satisfied with the pace and production of Electric Boat."

The 10th Trident has been assigned hull number SSBN 735; it has not yet been named. Hull numbers for the new 688s will be SSN 751 and SSN 752.

The contract for the attack subs brings the number built or under construction at EB to 24. The division has already delivered 13.

Electric Boat has already delivered two Tridents — *Ohio* (SSBN 726), the lead ship in the class, late in 1981 and *Michigan* (SSBN 727) earlier this year. Both are now in service.

* * *

Quonset Project Frees Groton For New Work

A $9 million waterfront improvement project at Electric Boat's Quonset Point facility promises a double bonus for the division.

The project will permit further streamlining of EB's submarine construction operations, while freeing the Groton shipyard to reenter the overhaul field.

Scheduled for completion in about a year, the project will allow Quonset to build larger and more complete submarine hull section "packages" than ever before.

This, in turn, will reduce congestion at the Groton shipyard, allowing it to get back into the overhaul business, which the division left in 1977 to concentrate on its very large new construction backlog.

In the current system, Quonset produces section packages of up to 300 tons, shipping them to the Groton shipyard by barge for further packaging and assembly into hulls. The improvement project centers around a new Heavy Component Transfer System that will double the lifting capacity on the Quonset waterfront to 600 tons.

The transfer system will consist of three basic components:

- A 700-ton multiwheeled ground

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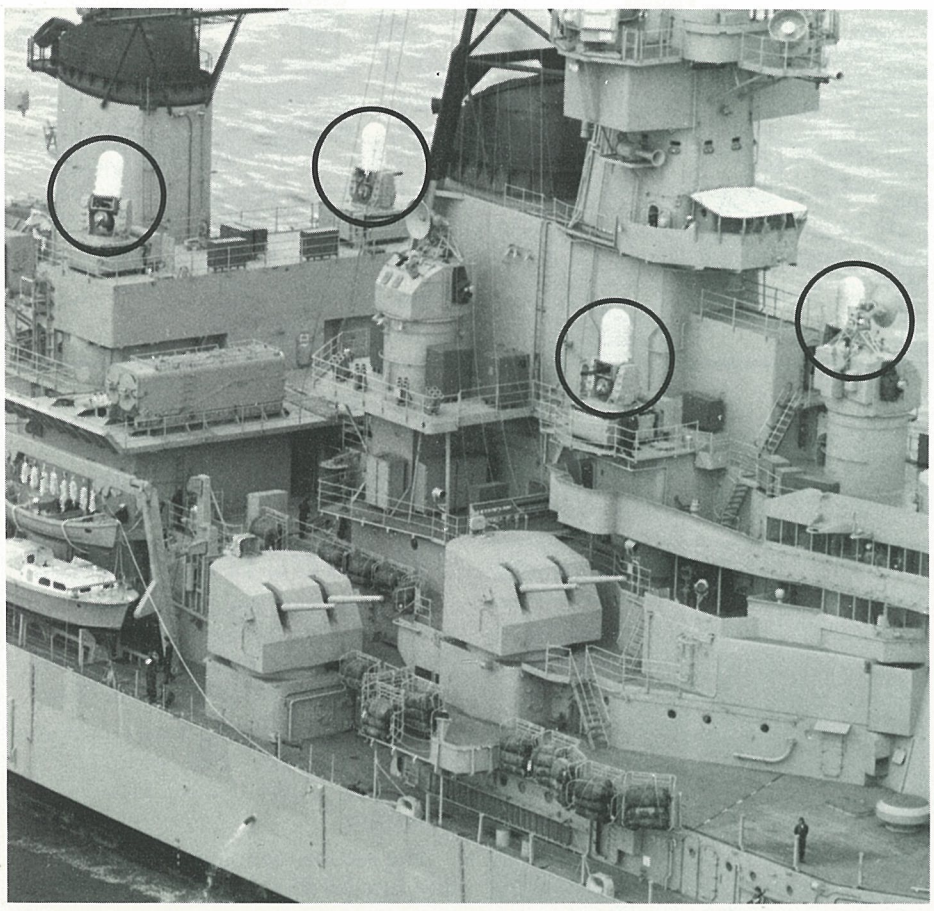


On Guard. *The battleship USS* New Jersey *has been outfitted with four Phalanx radar-directed gun systems, developed and produced by Pomona. The ship has been undergoing modernization at the Long Beach Naval Shipyard and recently returned from her first three days at sea since the start of retrofitting earlier this year. Phalanx is designed to protect ships against sea-skimming missiles or hostile aircraft that penetrate the fleet's outer defenses. The U.S. Navy plans to install Phalanx aboard 35 ship classes ranging from aircraft carriers to frigates.*

1st Mission for Convair's MRASM Will Be to Disable Enemy Airfields

Since beginning full-scale engineering development last year, much of Convair's effort on the Medium Range Air-to-Surface Missile has been focused on dispensing systems for the runway attack submunitions.

On December 3rd, Convair was awarded a $93.5 million contract to continue full-scale engineering development of the Tomahawk "baseline" Medium Range Air-to-Surface Missile by the Joint Cruise Missile Project Office. This is an incrementally funded contract with a period of performance that commenced October 1981 and will be completed in February 1985.

MRASM is a joint-service program under the Joint Cruise Missile Project to develop a conventionally armed, standoff weapon for attacking high-value targets without exposing pilots to intense antiaircraft defenses. It is a derivative of Convair's Tomahawk cruise missile, under development since 1972. MRASM's first mission is to provide a method of attacking and disabling enemy airfields.

The first demonstration of the use of submunitions came, not as part of the MRASM program, but in 1978 during the basic Tomahawk program. On May 26, 1978, a Tomahawk land-attack missile flew down the middle of a simulated runway at the Dugway Proving Ground, placing dummy submunitions on the target at the end of the test mission.

According to Dr. Jim Karam, Convair's MRASM Program Director, the design of the dispenser for the submunitions has been changed from the original, which ejected the explosives upward, to one which ejects them laterally. This change, according to Karam, has removed some earlier constraints on the size and shape of the submunitions.

Two submunitions are currently under consideration for use with MRASM — the Boosted Kinetic Energy Penetrator, developed by the USAF Armament Division at Eglin AFB, Fla., and the STABO munition, developed by Germany's Messerschmitt-Boelkow-Blohm. Both munitions can penetrate the paved surface of a runway before the main charge explodes, causing cratering.

The BKEP is a single-stage device which uses a rocket motor to drive a steel penetrator containing explosives through the runway surface. STABO uses a forward explosive charge that perforates the runway surface and a second charge that explodes under the surface. Both designs are being tested at Eglin.

RAM Again Proves Its Effectiveness In Overwater Test

For the second consecutive time in an over-the-water test, a RAM, produced by Pomona, has successfully intercepted a remotely controlled drone simulating an antiship missile.

The test which took place at the Pacific Missile Range was one in a series to prove RAM's effectiveness in a sea environment.

RAM is a high-firepower, lightweight, fast-reaction missile system designed to provide a wide range of ships with a defense against antiship missiles. It is being developed at Pomona under the sponsorship of the U.S. Navy and the governments of West Germany and Denmark. Joint development is an important step in the standardization and interoperability of North Atlantic Treaty Organization (NATO) defensive systems.

Previous tests at White Sands Missile Range, N.M., verified RAM's fundamental performance characteristics, and resulted in the successful interception of five drone targets.

Savings and Stock Investment Values

	Oct. 1980	Oct. 1981	Oct. 1982
Salaried			
Government Bonds	$ 2.4364	$ 2.7293	$ 3.2826
Diversified Portfolio	2.0053	2.0562	2.4013
Fixed Income	1.1354	1.2607	1.4043
Hourly			
Government Bonds	2.4342	2.7269	3.2806
Diversified Portfolio	2.0454	2.0998	2.4517
GD Stock	$32.9375*	$26.5600	$32.7500

* Reflects 2 for 1 stock split of November 1980.

Around the World... ...In GD

CHQ: *James M. Webdell* joined as Subcontract Auditor . . . *Kenneth S. Daniszewski* as Internal Auditor . . . *John E. Grant* transferred from Pomona and was promoted to Corporate Manager, Technology Planning . . . *Robert A. Ames* was promoted to Corporate Manager, Pricing . . . *Richard A. Lightner* transferred from Pomona as Corporate Pricing Specialist . . . *Mustafa Guleyupoglu* transferred from Quincy as Corporate Marketing Representative - Turkey . . . *David J. Suda* transferred from Land Systems and was promoted to Corporate Manager, Benefits Data Control.

Electric Boat: *Edward Haik* was promoted to Group Trade Planner at Quonset Point . . . *Edward Damien* to Nuclear Ship Manager . . . *Michael Cardinal* to Trade Planning Supervisor . . . *Kenneth Hill* and *Robert Mandes* to Manager of Trade Planning . . . *Carl Neville* and *James Pasqualini* to Shift Refueling Engineer . . . *Joseph Connolly* to Superintendent . . . *William Cohn* to Chief Engineer, Logistics Engineering . . . *Larry Dennis* to Industrial Relations Staff Specialist . . . *James Rice* to Assistant Superintendent.

Pomona: *Paul R. Boyle* was promoted to Technical Staffing Supervisor . . . *Gene Davidofsky* to Plant Engineering Supervisor . . . *Rollin B. England* to Quality Assurance Group Engineer . . . *Carl T. Gentry* and *Robert B. Olson Jr.* to Project Coordinator . . . *James C. Warren* to College Relations Coordinator . . . *Terry R. Woods* to Publications Group Supervisor . . . *Robert J. Chavez* and *Richard Ferraro* to Material Liaison Representative . . . *Grady K. Cochrane, Elizabeth J. Giese, Clyde M. Shaver* and *John P. Sheahan* to Procurement Administrator . . . *William J. King Jr.* to Senior Quality Assurance Specialist . . . *Phillip D. Philson* and *Robert C. Thacker* to Superintendent . . . *Carol A. Turner* to Manufacturing Supervisor.

Land Systems: *Thomas Baranouskas* transferred from Corporate Headquarters and was promoted to Controller . . . *Paul Works* transferred from DSD Eastern Center and was promoted to Software Design Specialist . . . *Terry Bohannon* was promoted to Provisioning Documentation Supervisor . . . *Christopher Dembeck* to Technical Data Writer . . . *Daniel Mulhern* to Programmer Analyst . . . *John Bentley* to Contractor Depot Support Supervisor . . . *Paul Thomas* to Skilled Trades Custodian . . . *James Budzyn* to Senior Product Design & Development Engineer . . . *Richard Miller* to Logistics Engineer Group Supervisor . . . *Brent Olesen* to Personnel Administration Supervisor . . . *George Payne* to Senior Product Design & Development Engineer . . . *Frank Piasecki* to Tool Engineering Supervisor . . . *Nora Iversen* to Materials Verification Laboratory Specialist . . . *Rudolph Belian* to Parts Follow-Up Supervisor . . . *Janis Hannan* to Purchasing Administration Coordinator . . . *Hal Wagner* to Material Control Foreman . . . *Charles Craw* to Toolroom Foreman . . . *Richard Wasson* to Employee Services Coordinator . . . *Larry McFarland* to Vehicle Engineering Representative . . . *Richard Pope* to Direct Labor Standards Supervisor . . . *Terry Kimmet* to Systems and Process Analyst B . . . *Elizabeth Pohlman* to Systems and Procedures Analyst B . . . *Dorothy Bean* to Contract Coordinator B . . . *Mark Darbyshire* to Chief Advanced Technician . . . *Robert Rannebarger* to Visual Communications Specialist . . . *Donald Ishmael* to Employment Manager . . . *Karl Oskoian* to Business Planning Specialist . . . *Aaron Spencer* to Purchasing Technical Analyst . . . *James Scalzo* to Material Management Supervisor . . . *Robert Pearson* to Manager, Management Controls . . . *Beverly Sanborn* to Office Services Unit Supervisor . . . *Michael Fohey* to Inspection General Foreman.

Convair: *Carol J. Black* and *Jack D. Barbieux* were promoted to Chief, Finance . . .*John D. Heronemus* and *Gary J. Tragesser* to Group Engineer . . . *William V. Messer* to Operations Supervisor - Manufacturing . . . *Les B. Wolf* to Engineering Laboratory Supervisor . . . *Richard L. Brummage* to Senior Project Engineer . . . *William E. Butler* and *Thomas A. Roach* to Operations General Supervisor - Manufacturing . . . *James T. Lumgair* to Engineering Chief - Liaison.

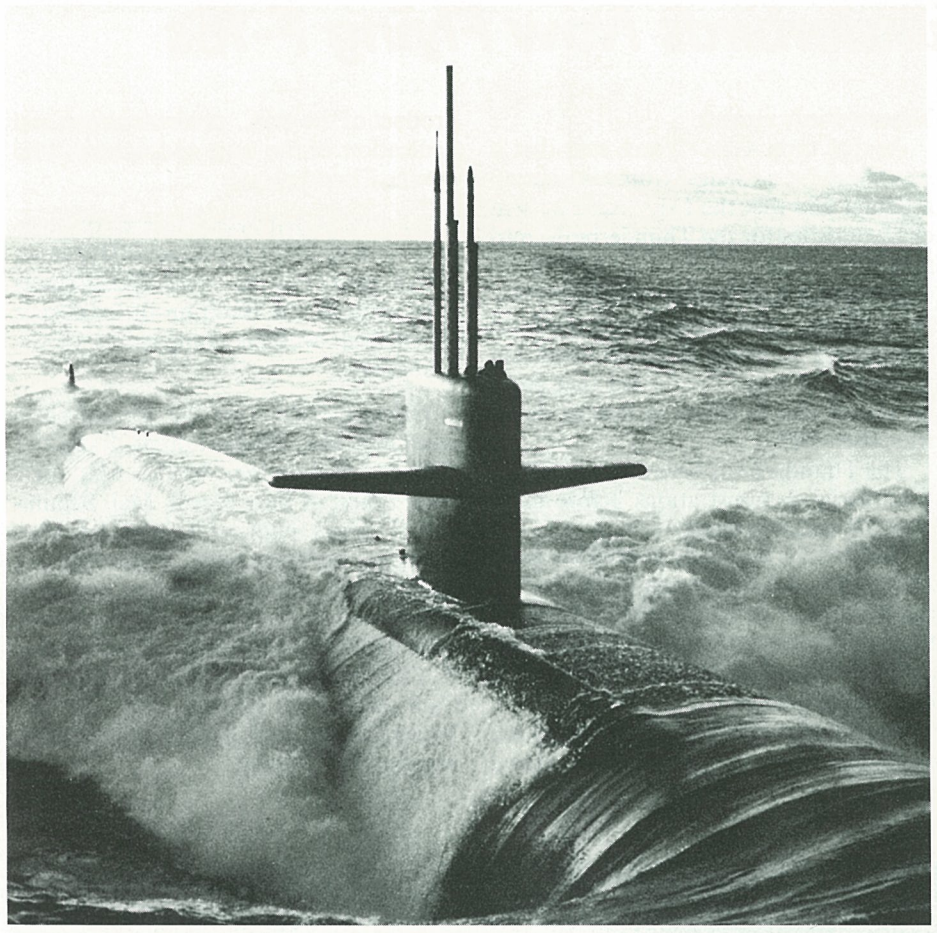
Fort Worth: *J. C. Barber, R. D. Hastings, J. K. Northcott, C. B. Perry, E. W. Prater Jr., C. R. Reitan, D. L. Rutledge, D. D. Stovall* and *G. N. Wilks* were promoted to Logistics Group Supervisor . . . *M. F. Blanchard* to Engineering Group Supervisor . . . *R. B. Brown* to Chief of Industrial Engineering . . . *T. D. Brown* to Material Supervisor . . . *R. A. Capshaw, J. R. Steves Jr., D. W. Jones* and *R. M. Drewry* to Manager, F-16 Programs . . . *J. D. Castleman, D. R. Coccaro, F. A. Johnson, J. C. Krohn* and *M. A. Steeb* to Field Service Engineer . . . *W. C. Clark* to Senior Quality Assurance Engineer . . . *D. Clayton* to Project Engineer . . . *L. L. Davis* and *D. W. Reagan* to Principal Field Service Engineer . . . *R. V. Hendricks* and *D. R. Shipley* to Chief of Logistics . . . *P. E. Hiatt* to Logistics Engineer . . . *R. M. Hills* to Manufacturing Technology Supervisor . . . *J. E. Johnson* to Material Planning Supervisor . . . *P. M. Jones* to Numerical Control Supervisor . . . *A. B. McLemore* to Engineering Chief . . . *C. M. Opry* to Senior Program Estimator . . . *J. G. Redinger* to Senior Program Analyst . . . *G. A. Setser* to Inspection Supervisor . . . *J. W. Stout Jr.* to News/Information Specialist . . . *C. W. Murrell* to Night Chief, Plant Engineering.

GD Services: *A. E. Darroch* was promoted to Group Leader of Maintenance Training.

Data Systems: *Joseph E. Slota* and *Joseph C. Kane Jr.* were promoted to Computer Services Specialist . . . *W. M. Murray* to Director Technical Software . . . *G. J. McCarthy* joined as Planning & Control Specialist . . . At Western Center, *S. M. Barber* was promoted to Senior Software Engineer . . . *R. R. Miller* to Supervisor - Engineering Software . . . At Central Center, *H. R. Hickman* to Director, Computer Services . . . *J. D. Thedford* to Manager, Operations Services . . . *A. L. Eubanks* to Chief, Engineering Software.

DatagraphiX: *K. S. Ernest* was promoted to Supervisor, Software Development . . . *R. G. Hirnisey* to Regional Systems Specialist . . . *B. R. Betts* to Project Leader - Marketing Software . . . *E. G. Macy* to Production Control Supervisor . . . *R. R. Schaefer* to District Sales Manager.

Electronics: *Odis C. Austin* was promoted to Senior Planning & Control Analyst . . . *James D. Lauerman* to Project Manager . . . *Elizabeth Walton* to Section Head - Operations.



Early Delivery. *The 688-class fast attack submarine* City of Corpus Christi, *shown on sea trials, was delivered to the Navy November 24th — a month early — by Electric Boat. The submarine was the second of its class turned over to the U.S. Navy this year by EB.* City of Corpus Christi *will officially join the fleet during commissioning ceremonies on January 8th.*

Technology Modernization Saves $64 Million in F-16 Manufacturing

Fort Worth's Technology Modernization Program has saved more than $64 million in F-16 production costs so far and is causing the government and defense industry to take a closer look at potential benefits modernization could have for other procurement programs.

Firm figures from the first three F-16 production contracts, in 1977-79, 1980 and 1981, were reviewed by Charles N. White, Fort Worth's Vice President - Production, at the fourth annual Technology Modernization Industry Review in November. The savings on those contracts were $10.2 million, $22.9 million and $30.5 million, White said.

The next production contract, a multi-year contract covering 1982-85, is expected to result in savings of an additional $132 million.

USAF Brig. Gen. George L. Monahan Jr., the Air Force's F-16 Program Director, said the success of the program is benefitting the other armed services.

The Department of Defense recently initiated an Industrial Modernization Incentive Program that involves all the armed services, explained Michael F. Miller, Fort Worth's Tech Mod program manager.

"There's a wide spectrum of opportunities for modernization programs to meet the services' individual needs," Miller said. "The common thread is some form of productivity improvement."

Cost reduction is not the only goal of Tech Mod. White said there is evidence Fort Worth's program is resulting in faster production and higher product quality. He noted that F-16 deliveries have remained on or ahead of schedule and that less than four percent of the labor hours expended now are for scrap or rework.

Additional benefits from Tech Mod include an improved "surge" capability for Fort Worth should sharply accelerated aircraft production ever be requested by the government, according to Gen. Monahan.

* * *

The Technology Modernization effort at Fort Worth has only touched "the tip of the iceberg" as far as what can be done to reduce F-16 costs and improve product quality, according to Herbert F. Rogers, Fort Worth Vice President and General Manger.

Most modernizing projects to date have taken place on the factory floor and only affected the 25 percent of Fort Worth's employees who are directly involved in F-16 production, Rogers explained.

An even greater potential for improvements exists in the work force that never actually comes in contact with the aircraft, he said, speaking at the fourth annual Technology Modernization Industry Review in November.

Rogers said increased savings and improved quality will come as a result of projects such as the Corporate Productivity Program.

FB/F-111s Sweep U.S. Air Force Bombing, Navigation Competition

U.S. Air Force crews flying Fort Worth-built FB-111s beat out other bombers to win three major awards in the recent 1982 Strategic Air Command annual bombing and navigation competition.

The 509th Bomb Wing from Pease AFB, N.H., earned the prestigious Fairchild Trophy, which is presented to the SAC wing with the highest combined bomber and tanker scores. FB-111s have won this award in seven of the last eight years.

The 509th Bomb Wing also won the Mathis Trophy by scoring the most total points in high and low altitude bombing. FB-111s or F-111s have taken this trophy in five of the last six years.

The 380th Bomb Wing from Plattsburgh AFB, N.Y., won the Curtis E. LeMay Trophy, which goes to the bomber crew compiling the most total points on high and low altitude bombing missions. FB-111s have won this award in each of the last six years.

In other competition, open only to F/FB-111s, the 380th Bomb Wing won the award for Best FB-111 Crew and the Royal Australian Air Force A-1 crew from Amberley, flying an F-111C, won the award for Best F-111 Crew. The 509th Bomb Wing won the John C. Meyer Trophy, which is awarded to the F/FB-111 unit achieving the highest damage expectancy rating which is calculated on the basis of bombs delivered.

U.S. Savings Bonds Interest to Vary With Market Rates

The U.S. Treasury Department has instituted several improvements in its Series EE Bonds which are available to General Dynamics employees through the Payroll Savings Plan.

Now, Series EE bonds held five years or more will accrue interest based on 85 percent of the average market yield of five-year Treasury Securities. Since the five-year Treasury Securities have recently been quite high compared to normal Savings Bonds interest rates, the new return could be much greater on the bonds than it is now.

Bonds issued on or after November 1, 1982 are eligible for the new rates.

Should the Treasury Securities market rates decline in the future, the Savings Bonds are guaranteed to earn no less than 7.5 percent when held five years or longer. Bonds held under one year will earn 5.5 percent; bonds held between one and five years will earn between 5.5 and 7.5 percent.

Persons participating in the Payroll Savings plan will automatically be included in the improved rate structure. Employees interested in increasing their Savings Bond allocation, or wishing to enroll, should contact Industrial Relations.

GD World

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Quonset Project Frees Groton For New Work

Continued from Page 1

transporter that will move components onto a specially constructed barge at Quonset and off the barge at Groton.

The transporter will replace in the loading and offloading operation a 410-ton capacity transporter, a 335-ton cantilever crane at Quonset and a 300-ton portal crane on Groton's Land Level Submarine Construction Facility.

- A new 195-foot barge outfitted with jack-up legs similar to those on offshore drilling rigs. The barge will be 30 feet longer and 23 feet wider than the barge currently in use and will have a load capacity of 1,260 tons.
- Underwater concrete pads at both Quonset and Groton to serve as loading and offloading stations for the barge.

Work on the new system at Quonset will start as soon as Quonset obtains all the necessary permits from the Rhode Island Coastal Resources Management Council and the U.S. Army Corps of Engineers. The project is expected to be operational about a year from now.

Capt. J. J. McKechnie To Head Convair Contract Office

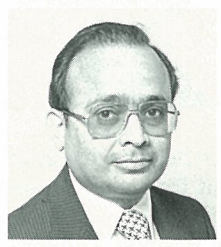
U.S. Navy Capt. John J. McKechnie has assumed command of the Defense Contract Administration Services Plant Representative Office at General Dynamics in San Diego, replacing USAF Col. Jesse J. Bass Jr.

Capt. McKechnie comes to the post from duty as Contract Officer in the office of the Supervisor of Shipbuilding, Conversion and Repair, for the Navy in San Diego.

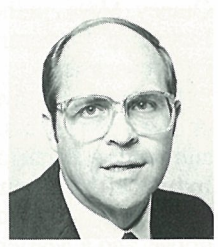
The Defense Contract Administration Services was formed in the early 1960s to administer military service contracts more efficiently. The office at San Diego, with about 135 employees, is responsible for administering more than 700 prime and support contracts with Convair and Electronics divisions.

Capt. McKechnie is a graduate of the University of Maryland, and received a Master of Business Administration degree in Procurement and Contracting from George Washington University.

M. Desai, R. Schwalm Named Directors For Land Systems



Desai



Schwalm

Mukund B. Desai has been named Land Systems' Director of Industrial Engineering and Scheduling, and Robert F. Schwalm has been appointed Director of Manufacturing Development and Productivity.

Desai will be responsible for all of the industrial engineering and scheduling activities of the division's manufacturing facilities. His most recent assignment with the division was as Manager of Manufacturing and Estimating.

Schwalm, who joined the division following a 22-year career with International Harvester, will provide direction for manufacturing, manufacturing engineering, industrial engineering and related activities. He also assumes responsibility for productivity improvement activities of the manufacturing area.

In addition, Larry L. Coffel was appointed Manager of Production Scheduling for the division. He is responsible for the development of the master program and contract delivery schedules and monitoring schedule performance for all manufacturing functions.

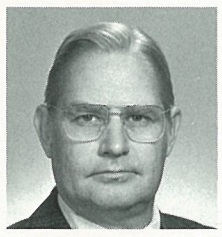
The Arab Republic of Egypt has issued a commemorative stamp featuring the F-16 on the occasion of the Golden Jubilee of the Egyptian Air Force. The two-color stamp prominently displays the F-16, the latest aircraft to go into EAF service, with an aircraft in the background that was used by the EAF years ago.

Five Executives Named to Key Posts at Convair

Continued from Page 1

State College, Long Beach, in 1963 with a Bachelor of Science degree in Electrical Engineering and holds a Master of Science degree in Systems Engineering from West Coast University, Los Angeles.

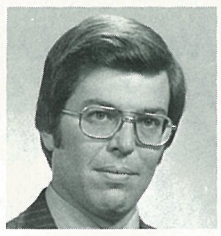
Kuchta has been serving as Deputy Director-Cruise Missiles at Convair since 1980. He joined General Dynamics at Convair in 1957 as a Dynamics Engineer and has since held a number of design and engineering management positions at the division. He has been closely associated with the development of the Tomahawk family of cruise missiles since 1977.



Kuchta

A native of Passaic, N.J., Kuchta earned a Bachelor of Science degree in Mechanical Engineering at the New Jersey Institute of Technology, Newark, and a Master of Science degree in Aerospace Engineering from San Diego State University.

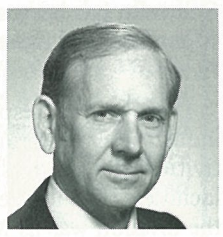
Veitch has been with Convair since 1975 and his most recent position has been Assistant Program Director-Cruise Missile Business. He joined General Dynamics in 1967 at Quincy Shipbuilding Division, Quincy, Mass., in the Industrial Engineering Department.



Veitch

Veitch is a native of Needham, Mass., and holds a Bachelor of Science degree in Industrial Management from the Massachusetts Institute of Technology, Cambridge, and a Master of Business Administration degree from Boston College.

Wier joined Convair in 1956 and has held a number of flight test and program management positions associated with the division's Atlas space booster and related space programs.



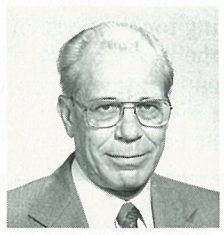
Wier

A native of Buffalo, N.Y., Wier holds a Bachelor of Science degree in Industrial Engineering from the University of Buffalo and has taken graduate work in computer technology at the University of California, Riverside.

* * *

W. C. Dietz Named FW Vice President

W. C. Dietz has been appointed Fort Worth Vice President - Program Director for Special Programs. He formerly was Vice President and Program Director - Cruise Missile at Convair.



Dietz

Dietz recently was elected to the National Academy of Engineering, the highest professional distinction that can be conferred upon an engineer. The Academy honors those who have made important contributions to engineering theory and practice or have demonstrated unusual accomplishments in new or developing technologies.

Dietz joined General Dynamics in 1940 and has held a number of progressively more important engineering positions since then. He was Project Leader for the B-58 bomber and Chief Engineer for the F-111 fighter. In 1971, he was assigned to the Lightweight Fighter Prototype program, and the following year was named Engineering Director for the YF-16 program. He was appointed Vice President of F-16 Engineering at Fort Worth in 1974.

In 1979, Dietz left Fort Worth to become Vice President and Program Director for Convair's Air Launched Cruise Missile. He was named Vice President and Program Director - Cruise Missiles at Convair in 1980.

U.S. Air Force Thunderbirds Now Flying F-16s

Continued from Page 1

proficiency, the aircrews maintain combat proficiency in air-to-surface tactics and in air superiority maneuvers. The new Thunderbird organization actually uses some of the resources of a fully combat ready F-16 squadron.

"Although the aircraft are painted in the traditional colors of the Thunderbirds, there are no modifications that in any way affect the combat capability of the aircraft. The F-16s used by the Thunderbirds can quickly be repainted and restored to combat configurations within 72 hours.

"In crisis or wartime, the pilots and aircraft along with maintenance and support personnel would be rapidly reintegrated into their combat unit — the 430th Tactical Fighter Squadron, which is also stationed at Nellis."

Last March, Gen. W. L. Creech, Commander of the Tactical Air Command, announced at Langley AFB, Va., that the Falcon would replace the T-38 as the Thunderbird's aircraft.

At that time, Gen. Creech said that it was "time for a change" from a trainer to a fighter and that the F-16 "has excellent characteristics for the Thunderbirds' mission."

He noted that because of the T-38's short range, the team could not perform overseas, a problem the F-16 does not have. Gen. Gregory indicated that some air shows may be flown in foreign countries after 1983.

The Thunderbirds have flown 2,455 official aerial demonstrations before more than 170 million people.

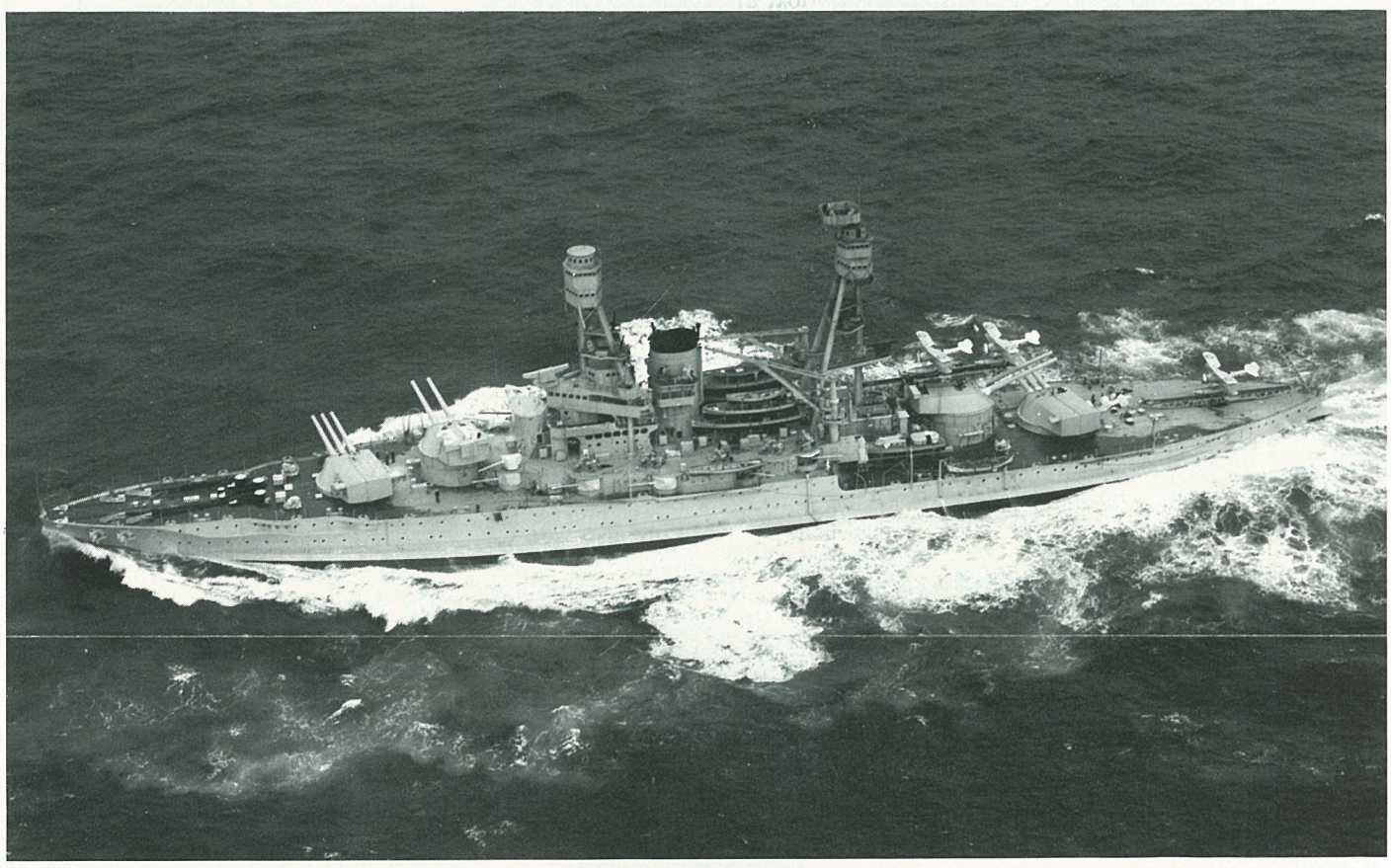
"Never once have they needed to cancel a performance for maintenance reasons — a great tribute to the exacting skill of the team maintenance personnel," said Capt. Jerald L. Thomas, Public Affairs Officer of the Squadron.

"The team's widespread popularity both in this country and overseas is a natural product of the skill, professionalism and dedication of the men and women who are the Thunderbirds.

"As they begin their 31st year of existence — now flying the General Dynamics F-16 Fighting Falcon — the Thunderbirds will continue the tradition of excellence established by their compatriots of the years past."

Other members of the Thunderbird team are: Maj. Kevin Collins, Executive Officer, of Tacoma, Wash.; Maj. Bob Fleer, pilot, of Fort Worth; Maj. Schumpert C. Jones, pilot, of Ruston, La; Maj. Lawrence Stellmon, pilot, of Hot Springs, Mont.; Capt. Howard Attarian, narrator, of Fairview, Kan.; Capt. John R. Bostick, pilot, of Water Valley, Ky.; Capt. Steven R. Chealander, pilot, of Bakersfield, Calif; Capt. Wayne K. Holum, pilot, of Twin Valley, Minn., and 1st Lt. Dan Cooley, Maintenance Officer.

GD Flashback



The USS Nevada

Battle-Scarred USS Nevada Survived Two Wars

The Fore River shipyard at Quincy, Mass., has always taken pride in the quality and durability of its vessels, and the rugged battleship *Nevada* proved that this pride was based on performance.

The USS *Nevada*, which joined the fleet in 1916, survived the Japanese attack on Pearl Harbor, six other major engagements in World War II—including a kamikaze attack—and an atomic bomb test. Finally, in 1948, after being decommissioned, the 32-year-old battleship was sunk only after a heavy barrage of 16-inch guns from another battleship and attacks by American dive bombers and torpedo planes.

Keel for the USS *Nevada* (BB-36) was laid on Nov. 4, 1912, by the Fore River Ship & Engine Co., predecessor of the Quincy Shipbuilding Division of General Dynamics.

The *Nevada* was one of the first oil-burning capital ships put into service by the U.S. Navy. She was 583 feet in length, had a beam of 85 feet and displaced 27,500 tons. Her turbine engines propelled her at 20 and a half knots. She was launched on July 11, 1914, and was commissioned on March 11, 1916, joining the fleet five days later. In World War I, she served with the British Grand Fleet in the North Sea and served in both the Atlantic and Pacific Fleets between the wars.

On Dec. 7, 1941, the *Nevada* was moored singly off Ford Island in Pearl Harbor and had a freedom of maneuver denied the other eight battleships moored together during the attack. As her gunners opened fire and her engineers got up steam, she was hit by a torpedo and six bombs, suffering severe structural damage and extensive flooding, but she was still able to get under way. She was hit again as she attempted to leave the harbor.

Realizing that if they could sink her in the channel they would be able to block the harbor, the Japanese pilots in the vicinity attacked her. The *Nevada* took all the punishment the Japanese planes could dish out. Her bridge and forestructure were a pillar of flame, but her guns kept firing. Finally, to avoid being sunk in the channel, her skipper deliberately beached her at Hospital Point, damaging her rudder and ruining her electric drive. In the attack, she lost 50 men with 109 wounded, and two of her crew later received the Medal of Honor.

The tough ship was refloated again on Feb. 12, 1942. After repairs at Pearl Harbor and Puget Sound Navy Yard, she sailed for Alaska, where she provided fire support for the capture of Attu in May 1942. In April 1944, after further modernization at Norfolk, she reached British waters to prepare for the Normandy invasion. In action from June 6th through 17th and again on June 25th, the *Nevada's* 14-inch guns pounded shore defenses on the Cherbourg Peninsula and as far as 17 miles inland, breaking up German concentrations and counterattacks. She continued her barrages of accurate fire despite being straddled 27 times by enemy shore batteries.

The *Nevada* participated in the invasion of Southern France between Aug. 15 and Sept. 25, 1944, dueling shore gun batteries at Toulon. She sailed to New York to have her gun barrels relined and then sailed for the Pacific, arriving off Iwo Jima on Feb. 16, 1945. She supported the marines ashore with massive gunfire through March 7th.

The *Nevada* was part of the mightiest naval force ever seen in the Pacific as she began preinvasion bombardment of Okinawa on March 24, 1945. She lost 11 men and a main battery turret was damaged when she was struck by a kamikaze aircraft on March 27th, and another two men were killed on April 5th when she was hit by fire from a shore battery. The *Nevada* closed out the war by bombarding the Japanese home islands.

After brief occupation duty in Tokyo Bay, she returned to Pearl Harbor and was assigned as a target ship for the atomic-bomb test at Bikini Atoll in the Marshall Islands in July 1946. Surprisingly, the rugged old veteran survived the test and was returned to Pearl Harbor, where she was decommissioned on Aug. 29, 1946.

Positioned off Hawaii on July 31, 1948, she was battered by the 16-inch guns of the battleship *Iowa*, bombed by dive bombers and hit by torpedo planes, but weathered the assault. Finally, a hit amidship by one of the torpedo planes was too much, and the tough old ship went down. The *Nevada*, which had received seven well-earned battle stars in World War II, proved her durability to the end.